AIRCASTLE MODELS DM700, EV760 (BATTERY-LINE OPERATED)

AIRCASTLE MODELS DM700, EV760 (BATTERY-LINE OPERATED)

AIRCASTLE MODELS DM700, EV760 (BATTERY-LINE OPERATED)

TRADE NAME	Aircastle, Models DM700, EV760
SUPPLIER	Spiegel, Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	Three Power Operated Portable Superheterodyne Receiver
TUBES	Types 1R5 Converter, 1L4 IF Amp., 1U5 DET-AVC-AF, 3S4 Power Output
POWER SUPPLY	110-120 Volts AC-DC or 6 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.16 Amp. at 117 Volts AC or 40MA at 6 Volts DC and 12.5MA at 67.5Volts DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to stator or rear section of tuning gang. Low side to B-.	455KC (400 ~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1720KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	Tune for max. output.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRCASTLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amp.	1L4	1L4	6AR	
V3	DET.-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	CL-10010	PRSA150/50-50	EDL5515		TA-505	Filter Blue
B	50	150						Filter Red
C2	100	50	CL-10009	PRS50/100	BRH501		UHC-105	Filament Bypass
C3	.01	600	CP-12103	P688-01	PTE6S1	GP2-335-01	TM-11	Decoupling
C4	.02	200	CP-12203	P488-02	PTE4S2		TM-12	AVC Filter
C5	250	500	CM-15251	1468-00025	5W5T25	GP2K-250	1FM-325	Diode RF Filter
C6	.0018	1500		P688-002	PTE6D2	GP2M-002	TM-22	Audio Coupling
C7	.01	600	CP-12103	P688-01	PTE6S1	GP2-335-01	TM-11	AF Amp. Screen Bypass
C8	.005	200	CP-12502	P688-005	PTE6D5	GP2M-005	TM-25	Audio Coupling
C9	.0025	1400	CP-14302	P688-0022	PTE6D3		TM-23	Output Plate Bypass
C10	.1	400	CP-14104	P488-1	PTE4P1		72P52	Line Isolation
C11	.05	400	CP-14503	P488-05	PTE4S5		TM-15	Line Filter

CONTROLS

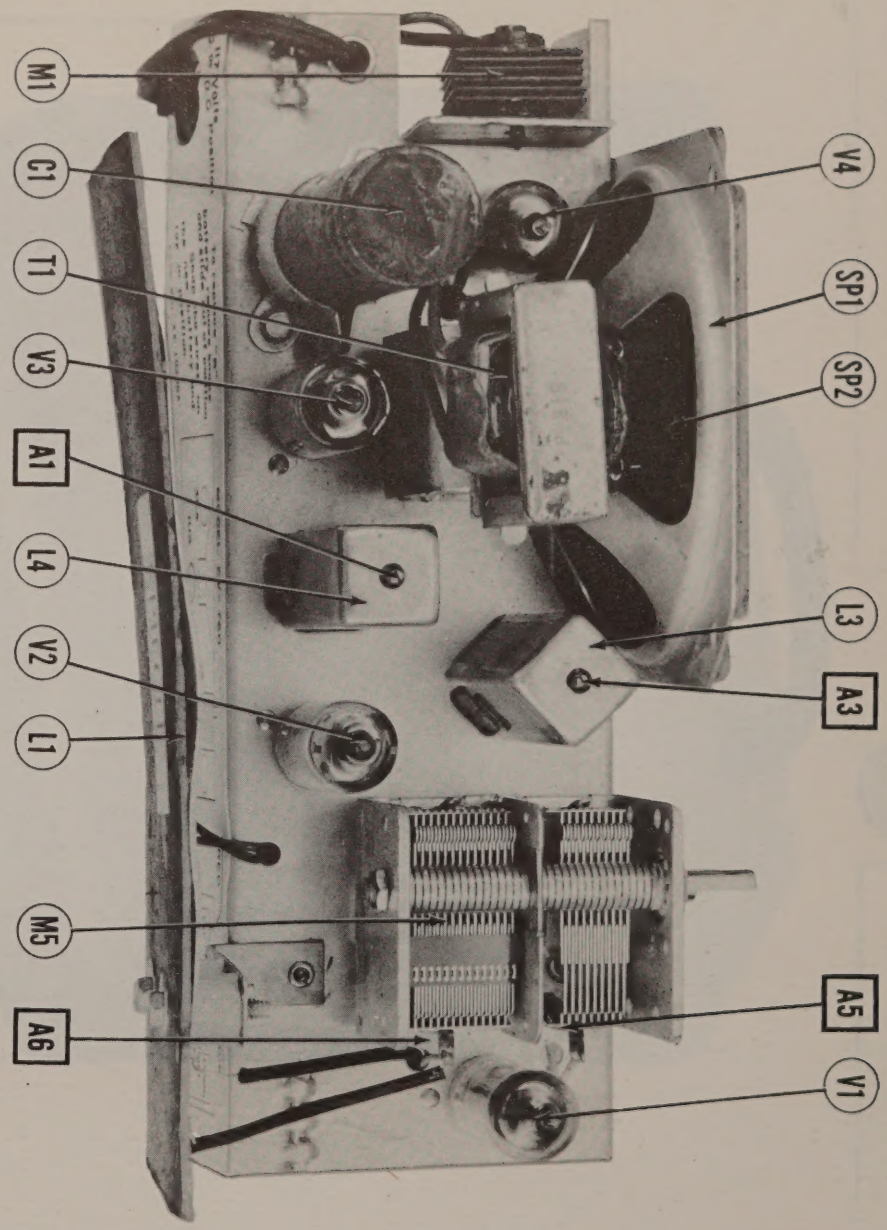
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	VC-31105-B	Q13-137	M-63-Z	Volume control
B	Switch		Not Req.	76-2	SW-A2	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	RC-31003	BTS-100K	Osc. Grid
R3	2.2 Meg.	½	RC-32204	BTS-2.2 Meg.	IF Grid
R4	5000Ω	½	RC-35001	BTS-4700	Screen Dropping
R5	2.2 Meg.	½	RC-32204	BTS-2.2 Meg.	AVC Network
R6	10 Meg.	½	RC-31005	BTS-10 Meg.	AF Grid
R7	3.3 Meg.	½	RC-33304	BTS-3.3 Meg.	AF Screen
R8	1 Meg.	½	RC-31004	BTS-1 Meg.	AF Plate
R9	2.2 Meg.	½	RC-32204	BTS#2.2 Meg.	Output Grid
R10	820Ω	½	RC-38200	BTS-820	Filament String
R11	1500Ω	½	RC-31501	BTS-1500	Filament String
R12 A	1100Ω	10	RX-10008	ABA-2500 *	Filament Dropping-Wire Wound
B	1350Ω				Filter-Wire Wound
R13	22Ω	½	RC-30220		Surge Limiter

* Set slider at 1100Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	6.5KΩ	3.2Ω	375Ω	.5Ω	TO-10012	A-3878 #	A-2931 #	RO-13 #	# Bend mounting tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113 †		
SP1	PM	3.2Ω	SR-10000	MOD. P4-X	4A07 †	† Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	
L1	Loop Ant.	3Ω		AL-10024		
L2	Osc. Coil	.8Ω	5Ω	TRC-10015A	14-1060	
L3	Input IF	30Ω	22Ω	TS-10040	16-6668	
L4	Output IF	30Ω	22Ω	TS-10040	16-6669	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	AIRCASTLE PART No.	SYLVANIA PART No.		
M1	.060A		NB-5		

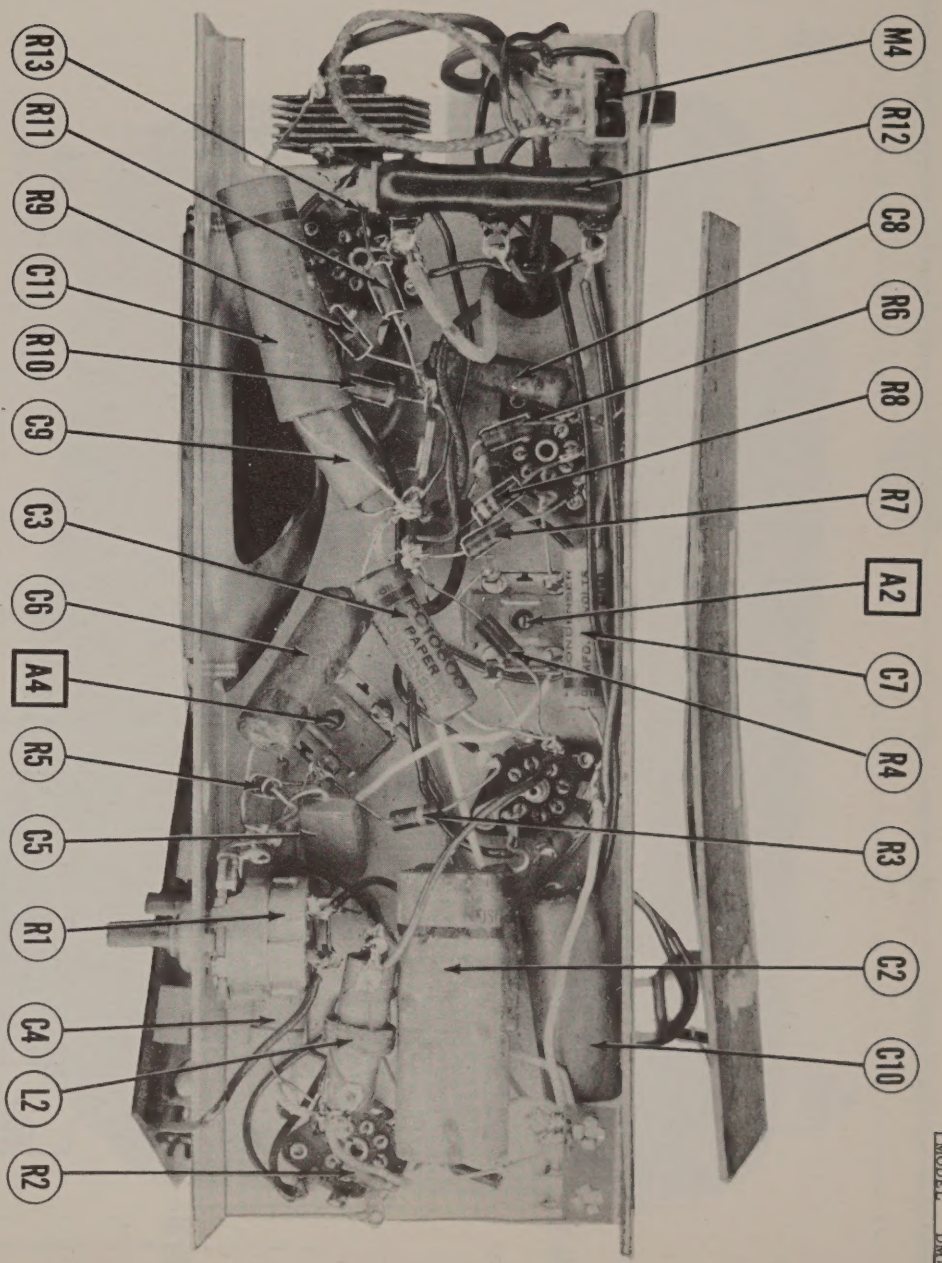
BATTERIES

ITEM No.	VOLTAGE	AIRCASTLE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	6V "A"	76Z1514	950			2R			4 Used in series
M3	67.5A "B"	76Z1523		467			XX45		

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M4	Switch	VS-10003	AC/DC-Battery
M5	2 Gang Var. Cap.	CV-10008D	(33-467MMF, 28-205MMF)

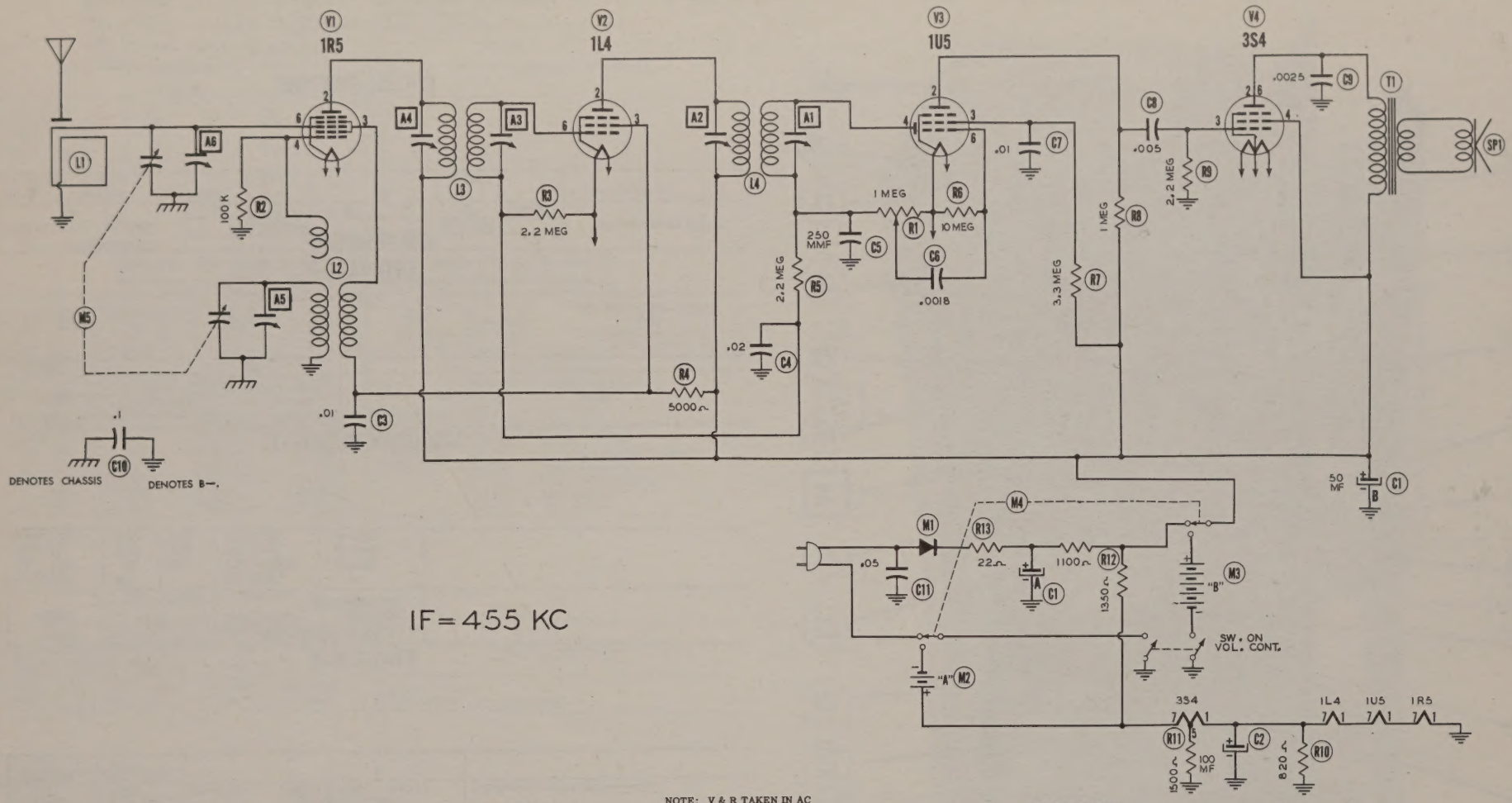
CHASSIS—BOTTOM VIEW



SET 85 FOLDER 1

AIRCASTLE MODEL DM700

AIRCASTLE MODEL DM700



IF = 455 KC

NOTE: V & R TAKEN IN AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0V.	57VDC	47VDC	§-4.2VDC	0V.	0V.	1.2VDC
V 2	1L4	2.5VDC	57VDC	47VDC	0V.	2.5VDC	.2VDC	3.7VDC
V 3	1U5	1.2VDC	20VDC	10VDC	.3VDC	0V.	0V.	2.5VDC
V 4	3S4	3.7VDC	55VDC	0V.	57VDC	5VDC	55VDC	6.3VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†1.4KΩ	†6.4KΩ	100KΩ	*	3Ω	*
V 2	1L4	*	†1.4KΩ	†6.4KΩ	0Ω	*	1.6 Meg.	*
V 3	1U5	*	†1 Meg.	†3.3 Meg.	750KΩ	Inf.	10 Meg.	*
V 4	3S4	*	†1.6KΩ	2.2Meg.	†1.4KΩ	*	†1.6KΩ	*

† MEASURED FROM OUTPUT OF M1.
* DO NOT USE OHMETER TO MEASURE FILAMENT RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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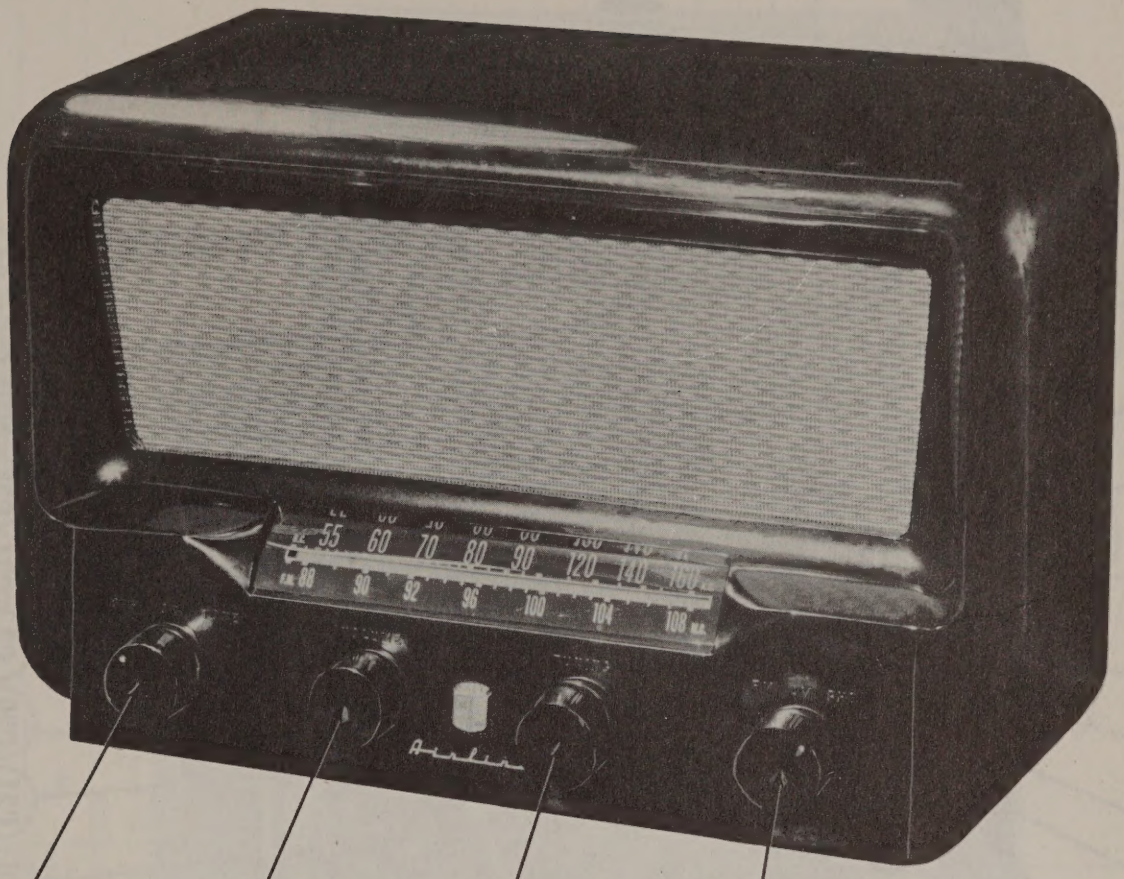
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE MODELS 84HA1529A, 84HA1530A, 94HA1529A, 94HA1530A



AIRLINE MODELS 84HA1529A, 84HA1530A, 94HA1529A, 94HA1530A

AIRLINE MODEL 94HA1529A

TRADE NAME	Airline, Models 84HA1529A, 84HA1530A, 94HA1529A, 94HA1530A		
SUPPLIER	Montgomery Ward and Co., 619 Chicago Ave., Chicago, Illinois		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES(SEVEN)	Types 12BE6 Converter, 6BJ6 1st IF Amp., 6BJ6 FM 2nd IF, AM DET-AVC, 12AL5 Ratio Detector, 12SQ7 AF Amp., 35L6GT Power Output, 35Z5GT Rectifier		
POWER SUPPLY	105-125 Volts AC -DC	RATING	.26 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC	FREQ. MOD.	88-108MC

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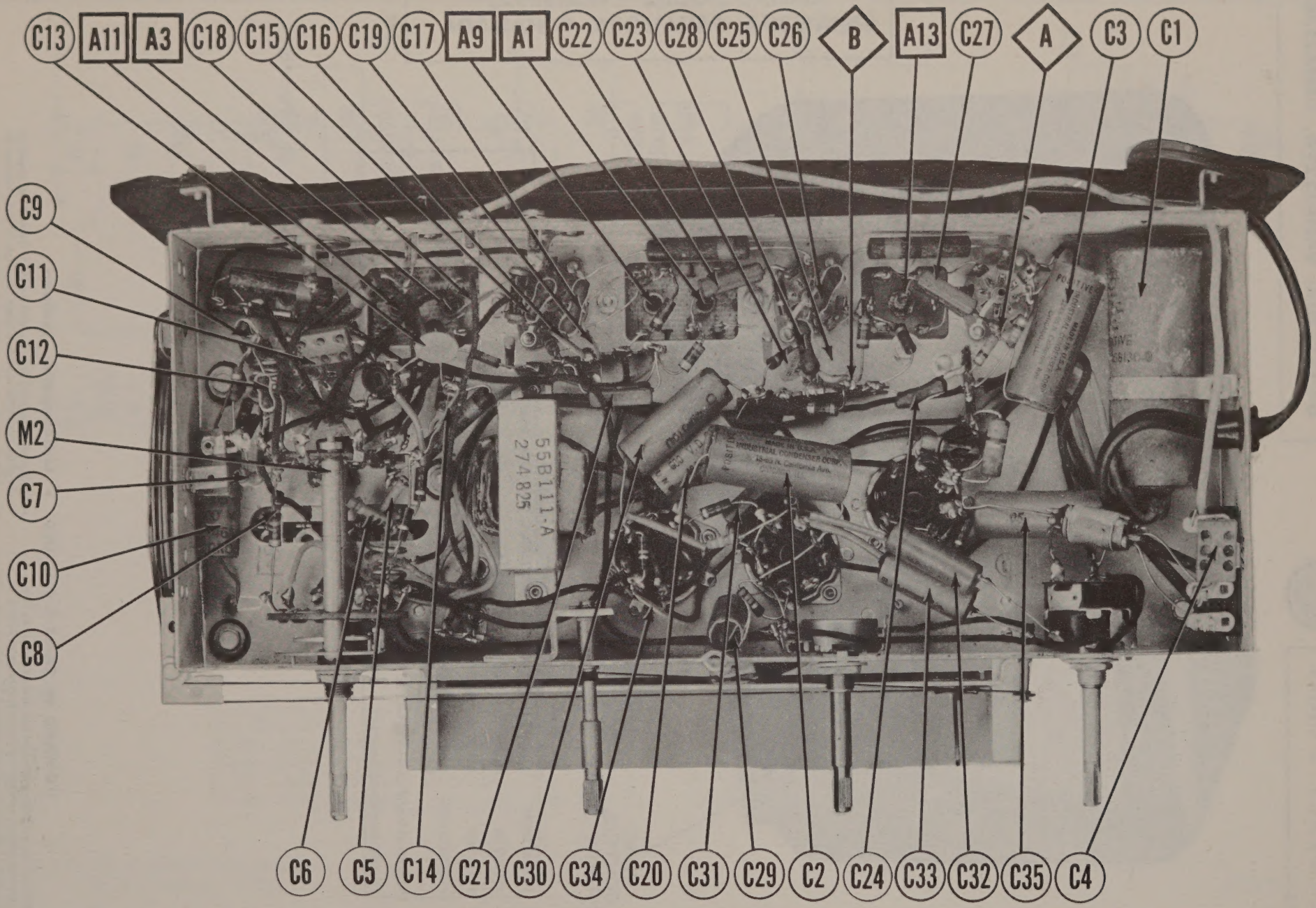
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A11
A3
C18
C15
C16
C19
C17
A9
A1
C22
C23
C28
C25
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B
A13
C27
A
C3
C1
C9
C11
C12
M2
C7
C10
C8
55B111-A
274825
C6
C5
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C21
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C34
C20
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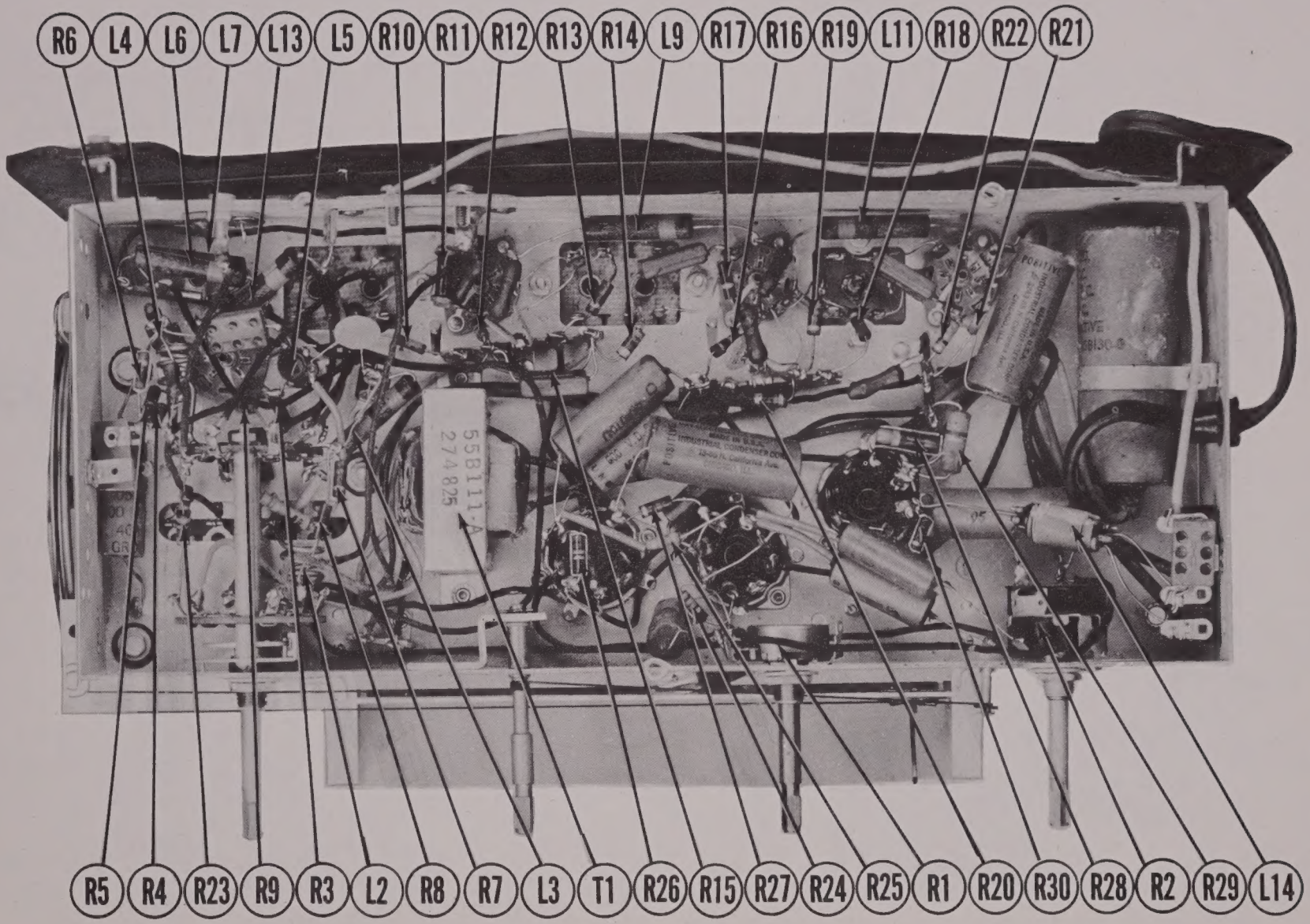
C35
C4


R6
L4
L6
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R17
R16
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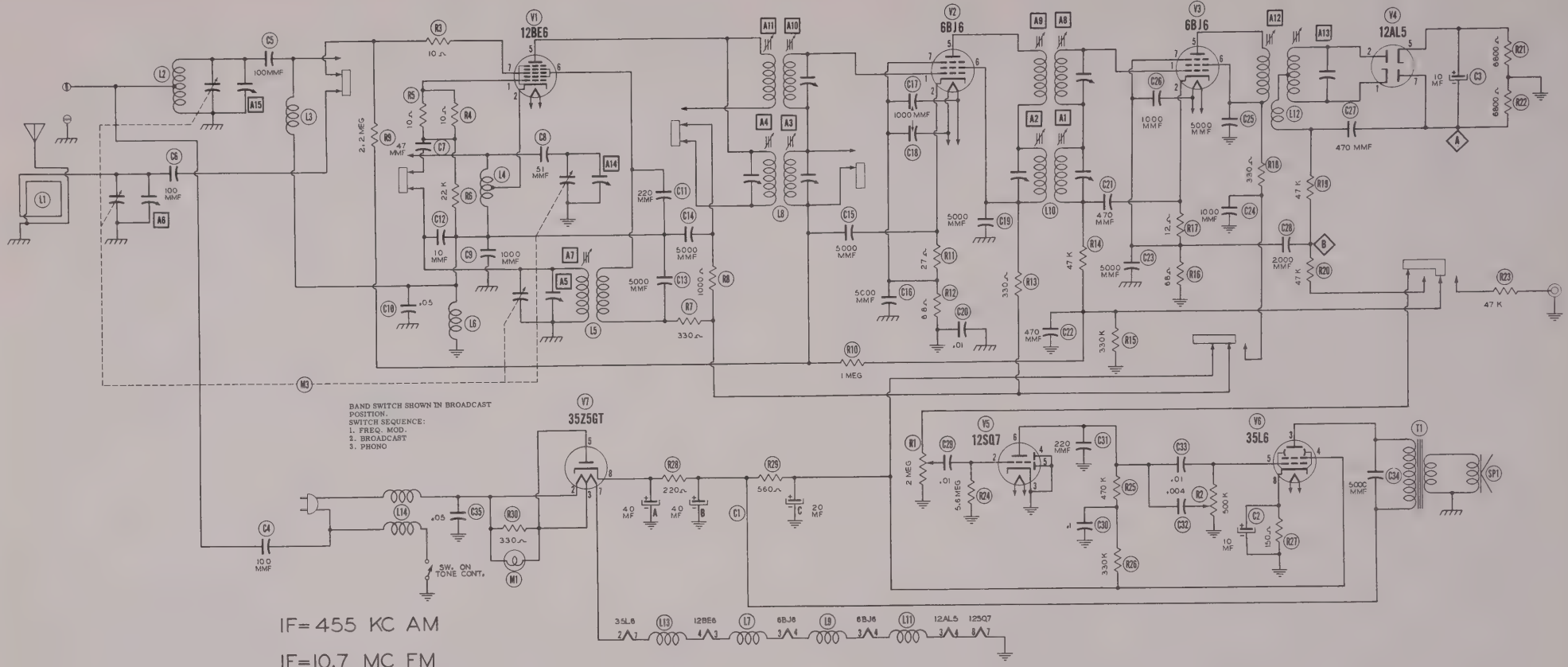
R18
R22
R21
R5
R4
R23
R9
R3
L2
R8
R7
L3
T1
R26
R15
R27
R24
R25
R1
R20
R30
R28
R2
R29
L14



VOLTAGE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
	V1A	12BE6	§-9VDC	.1VDC	40VAC	55VAC	100VDC	100VDC	-.3VDC	
†	V1B	12BE6	§-1.8VDC	.1VDC	40VAC	55VAC	90VDC	90VDC	.1VDC	
	V2	6BJ6	-.1VDC	.9VDC	40VAC	33VAC	100VDC	100VDC	.7VDC	
	V3A	6BJ6	-.5VDC	0V.	33VAC	27VAC	0V.	0V.	0V.	
†	V3B	6BJ6	0V.	.8VDC	33VAC	27VAC	90VDC	90VDC	.8VDC	
†	V4	12AL5	0V.	0V.	26VAC	12VAC	.2VDC	0V.	-.2VDC	
	V5	12SQ7	0V.	-.4VDC	0V.	0V.	0V.	36VDC	0V.	12VAC
	V6	35L6GT	0V.	90 VAC	100VDC	100VDC	0V.	75VDC	55VAC	5.8VDC
	V7	35Z5GT	112VDC	117VAC	115VAC	0V.	115VAC	0V.	90VAC	125VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.
† TAKEN IN FM POSITION.

RESISTANCE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
	V1A	12BE6	22KΩ	5Ω	5Ω	62Ω	†1.8KΩ	†1.2KΩ	3.5 Meg.	
‡	V1B	12BE6	22KΩ	5Ω	5Ω	62Ω	†1.8KΩ	†1.2KΩ	20Ω	
	V2	6BJ6	1.3 Meg.	95Ω	48Ω	40Ω	†1.2KΩ	†1.2KΩ	68Ω	
	V3A	6BJ6	380KΩ	80Ω	35Ω	29Ω	Inf.	Inf.	68Ω	
†	V3B	6BJ6	380KΩ	80Ω	35Ω	29Ω	†1.2KΩ	†1.2KΩ	68Ω	
†	V4	12AL5	2.1 Meg.	2.1 Meg.	24Ω	12Ω	6.8KΩ	Inf.	6.8KΩ	
	V5	12SQ7	Inf.	5.6 Meg.	0Ω	0Ω	0Ω	†770KΩ	0Ω 0Ω	12Ω
	V6	35L6GT	Inf	100Ω	†520Ω	†750Ω	500KΩ	†330KΩ	68Ω	150Ω
	V7	35Z5GT	190KΩ	128Ω	125Ω	Inf.	125Ω	Inf.	100Ω	190KΩ

† MEASURED FROM PIN 8 OF V 7.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn the tuning gang fully closed and set pointer to the first calibration mark on the left end of the dial backplate.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

The RMA dummy antenna consists of a 200MMF capacitor in series with a 20uh RF choke which is shunted by a 400MMF capacitor in series with a 400Ω resistor.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to stator on AM antenna section of tuning gang. Low side to B-.	455KC (400 ~ Mod.)	AM (center)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	RMA	High side thru dummy to "BC" ant. terminal. Low side to B-.	1500KC	"	Set pointer to the fourth calibration mark from the left on the dial backplate.	"	A5, A6	"
3.	RMA	"	600KC	"	Set pointer to third calibration mark from left.	"	A7	Adjust for maximum output. Repeat steps 2 and 3 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to stator of "FM" ant. section of tuning gang. Low side to B-.	10.7MC (Unmod.)	FM (CCW)	Tuning gang fully open	DC Probe thru 500KΩ to point (A) Common to B-.	A8, A9, A10, A11	Adjust for maximum deflection. Attenuate signal generator to obtain exactly 2 volt reading.
5.	Detune the signal below 10.7MC until VTVM reads exactly 1 volt, and carefully note frequency reading. Detune the signal above 10.7MC until VTVM reads exactly 1 volt, and carefully note frequency reading. Add the two frequencies obtained and divide their sum by 2. Set the generator to the resulting frequency and proceed with step 6.							
6.	.01MFD	High side to stator of "FM" ant. section of tuning gang. Low side to B-.	Set to frequency obtained in step 5.	FM	Tuning gang fully open	DC Probe thru 500KΩ to Point (A) Common to B-.	A12	Adjust for maximum deflection.
7.	.01MFD	"	"	"	"	DC Probe to Point (B) Common to B-.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ~ modulation and 450KC sweep. Use 120 ~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to stator of "FM" section of tuning gang.	10.7MC (450KC Sweep)	FM (CCW)	Point of non-interference	Vert. Amp. thru 500KΩ to Point (A) Low side to B-.	A8, A9, A10, A11, A12	Disconnect stabilizer capacitor (C3). Adjust for maximum amplitude and symmetry as per Fig 1.
5.	.01MFD	"	"	"	"	Vert. Amp. to Point (B) Low side to B-.	A13, A12	Reconnect capacitor C3. Adjust A13 so 10.7MC occurs at center of crossover lines as per Fig 2. Slightly retouch A12 for maximum amplitude and straightness of crossover lines. Continue with step 8.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	300Ω carbon res.	High side thru 300Ω to ungrounded "FM" antenna terminal. Low side to B-.	108MC (Unmod.)	FM	Set pointer to the last calibration mark on the right end of dial backplate.	DC Probe to Point (A) Common to B-.	A14, A15	Adjust for maximum deflection.

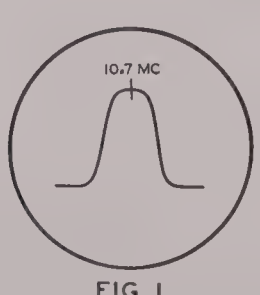


FIG. 1

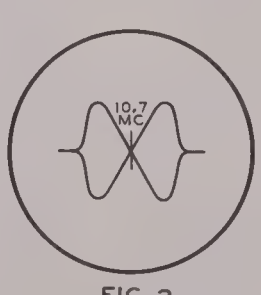


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	1st IF Amp.	6BJ6	6BJ6	7CM	
V3	FM 2nd IF Amp., AM DET.-AVC	6BJ6	6BJ6	7CM	
V4	Ratio Det.	12AL5	12AL5	6BT	
V5	AF Amp.	12SQ7	12SQ7	8Q	
V6	Power Output	35L6GT	35L6GT	7AC	
V7	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	45B130	PRSA888D	EDL44215		TA-304	Filter Red
B	40	150						Filter Red
C	20	150						Filter Blue
C2	10	25	45A121	PRS25/10	BR102A		TA-10	Output Cathode Bypass
C3	10	25	45A121	PRS25/10	BR102A		TA-10	Stabilizing Cap.
C4	100	500	CM20A101M	1468-0001	5W5T1	GP1K-100	1FM-31	FM Ant. Coupling
C5	100		CC26UK101K	1468-0001	5W5T1	GP1K-100	1FM-31	RF Coupling
C6	100		CC26UK101K	1468-0001	5W5T1	GP1K-100	1FM-31	RF Coupling
C7	47		CC21UK470K	1468-00005	5W5Q5	N750L-47	1FM-45	Osc. Grid Cap.
C8	51		CC21UK510J	1469-00005	5R5Q5	N750K-47	MS-45	Fixed Padder
C9	1000		47B20A102N5	1468-001	1W5D1	GP2L-001	1FM-21	RF Bypass
C10	.05	400	46AY503J	P488-05	PTE4S5		TM-15	RF Bypass
C11	220	500	CM20A221M	1468-00025	5W5T25	GP2K-220	1FM-325	Osc. Anode Bypass
C12	10		CC21UK050K			N750L-10		Fixed Trimmer-Note
C13	5000		47A168	1467-005	1D5D5	811-005	29C1	Osc. Decoupling
C14	5000		47A168	1467-005	1D5D5	811-005	29C1	Conv. Plate Decoupling
C15	5000		47A168	1467-005	1D5D5	811-005	29C1	AVC Filter
C16	5000		47A168	1467-005	1D5D5	811-005	29C1	1st IF Cathode Bypass
C17	1000		47B20A102N5	1468-001	1W5D1	GP2L-001	1FM-21	1st IF Fil. Bypass
C18	1000		47B20A102N5	1468-001	1W5D1	GP2L-001	1FM-21	1st IF Fil. Bypass
C19	5000		47A168	1467-005	1D5D5	811-005	29C1	1st IF Decoupling
C20	.01	600	46AZ103J	P688-01	PTE6S1	821-01	TM-11	Line Isolation
C21	470	500	CM20A471M	1468-0005	5W5T5	GP2K-470	1FM-35	Diode RF Filter
C22	470	500	CM20A471M	1468-0005	5W5T5	GP2K-470	1FM-35	Diode RF Filter
C23	5000		47A168	1467-005	1D5D5	811-005	29C1	2nd IF Cathode Bypass
C24	1000		47B20A102N5	1468-001	1W5D1	GP2L-001	1FM-21	RF Bypass
C25	5000		47A168	1467-005	1D5D5	811-005	29C1	2nd IF Decoupling
C26	1000		47B20A102N5	1468-001	1W5D1	GP2L-001	1FM-21	2nd IF Fil. Bypass
C27	470	500	CM20A471M	1468-0005	5W5T5	GP2K-470	1FM-35	Diode Load Cap.
C28	2000		47B20A202M5	1467-002	1W5D2	GP2M-002	1FM-22	De-emphasis
C29	.01	600	46AZ103J	P688-01	PTE6S1	821-01	TM-11	Audio Coupling
C30	.1	200	46AU104J	P288-1	PTE4P1		TM-1	AF Amp. Decoupling
C31	220	500	CM20A221M	1468-00025	5W5T25	GP2K-220	1FM-325	AF Amp. Plate Bypass
C32	.004	600	46AZ402J	P488-004	PTE6D4	GP2M-0047	TM-24	Tone Compensation
C33	.01	600	46AZ103J	P688-01	PTE6S1	821-01	TM-11	Audio Coupling
C34	5000		47A168	1467-005	1D5D5	811-005	29C1	Output Plate Bypass
C35	.05	600	46AR503J	P688-05	PTE6S5		TM-15	Line Filter

Note. Some models use 5MMF in this application.

SET 85

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	2 Meg.	½	25B624	QI3-139	AM-66-Z	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
R2A	500KΩ	½	25B758	QI3-133	AM-60-Z	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A per instructions
C	Switch		Not Req.	76-1	SW-A	Attach to R2A per instructions

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

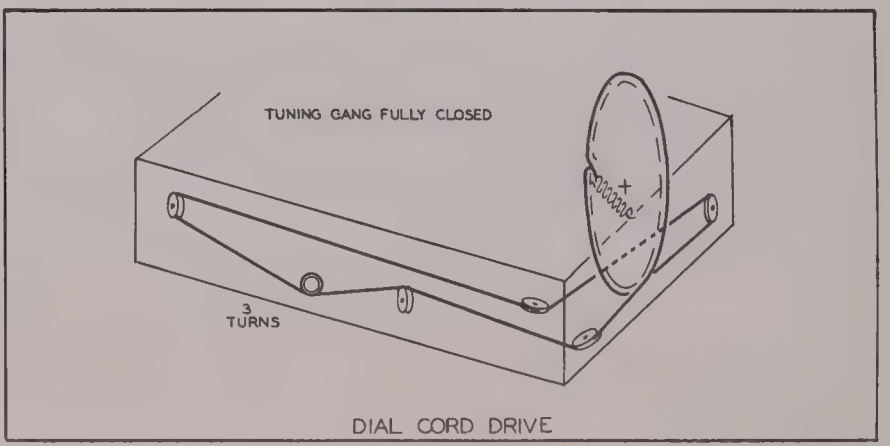
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA AIRLINE PART No.	REPLACEMENT DATA MEISSNER PART No.
L8	1st IF FM	.8Ω	.5Ω	50B399	
	AM	12Ω	12Ω		
L9	Fil. Choke	5Ω		53A153	
L10	2nd IF FM	1Ω	.5Ω	50B400	
	AM	8.5Ω	9Ω		
L11	Fil. Choke	5Ω		53A153	
L12	Ratio Det. Trans.	1.5Ω	0Ω		
L13	Fil. Choke	5Ω		53A153	
L14	Line Choke	.1Ω	.1Ω	53A137	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA AIRLINE PART No.		NOTES
M1	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M2	Switch	60B328	Band-Phono
M3	2 Gang Var. Cap.	48C203	(30-477MMF, 36-202MMF)
	Dial Pointer	82A151	
	Dial Scale	22C211	Models 84HA1529A, 94HA1529A
	Dial Scale	22C211-1	Models 84HA1530A, 94HA1530A
	Cabinet	66F466	Brown
	Cabinet	66F466-1	Ivory
	Knob	15B067-7	Volume, Tuning (1529A)
	Knob	15B067-8	Volume, Tuning (1530A)
	Knob	15B142-3	Tone, Band (1529A)
	Knob	15B142-4	Tone, Band (1530A)



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
R3	10Ω	½	RC20AE100K		Parasitic Supp.
R4	10Ω	½	RC20AE100K		Parasitic Supp.
R5	10Ω	½	RC20AE100K		Parasitic Supp.
R6	22KΩ	½	RC20AE223K	BTS-22K	Osc. Grid
R7	330Ω	½	RC20AE331M	BW-½-330	Osc. Anode Decoupling
R8	1000Ω	½	RC20AE102M	BTS-1000	Conv. Plate Decoupling
R9	2.2 Meg.	½	RC20AE225M	BTS-2.2 Meg.	AVC Network
R10	1 Meg.	½	RC20AE105M	BTS-1 Meg.	AVC Network
R11	27Ω	½	RC20AE270K	BW-½-27	1st IF Cathode
R12	68Ω	½	RC20AE680K	BW-½-68	1st IF Cathode
R13	330Ω	½	RC20AE331M	BW-½-330	1st IF Decoupling
R14	47KΩ	½	RC20AE473M	BTS-47K	Diode Filter
R15	330KΩ	½	RC20AE334M	BTS-330K	Diode Load
R16	68Ω	½	RC20AE680K	BW-½-68	2nd FM IF Cathode
R17	12Ω	½	RC20AE120K	BW-½-12	2nd FM IF Cathode
R18	330Ω	½	RC20AE331M	BW-½-330	2nd FM IF Decoupling
R19	47KΩ	½	RC20AE473M	BTS-47K	De-emphasis
R20	47KΩ	½	RC20AE473M	BTS-47K	De-emphasis
R21	6800Ω	½	RC20AE682K	BTS-6800	Ratio Det. Diode Load
R22	6800Ω	½	RC20AE682K	BTS-6800	Ratio Det. Diode Load
R23	47KΩ	½	RC20AE473M	BTS-47K	Tone Compensation
R24	5.6 Meg.	½	RC20AE565M	BTS-5.6 Meg.	AF Grid
R25	470KΩ	½	RC20AE474M	BTS-470K	AF Plate
R26	330KΩ	½	RC20AE334M	BTS-330K	AF Plate Decoupling
R27	150Ω	½	RC20AE151K	BW-½-150	Output Cathode
R28	220Ω	1	RC30AE221M	BW-1-220	Filter
R29	560Ω	1	RC30AE561K	BW-1-560	Filter
R30	330Ω	½	RC20AE331M	BW-½-330	Pilot Lamp Shunt

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2KΩ	3.5Ω	340Ω	.7Ω	55B111	A-3849	A-2902	RO-2 *	* Drill one new mounting hole.

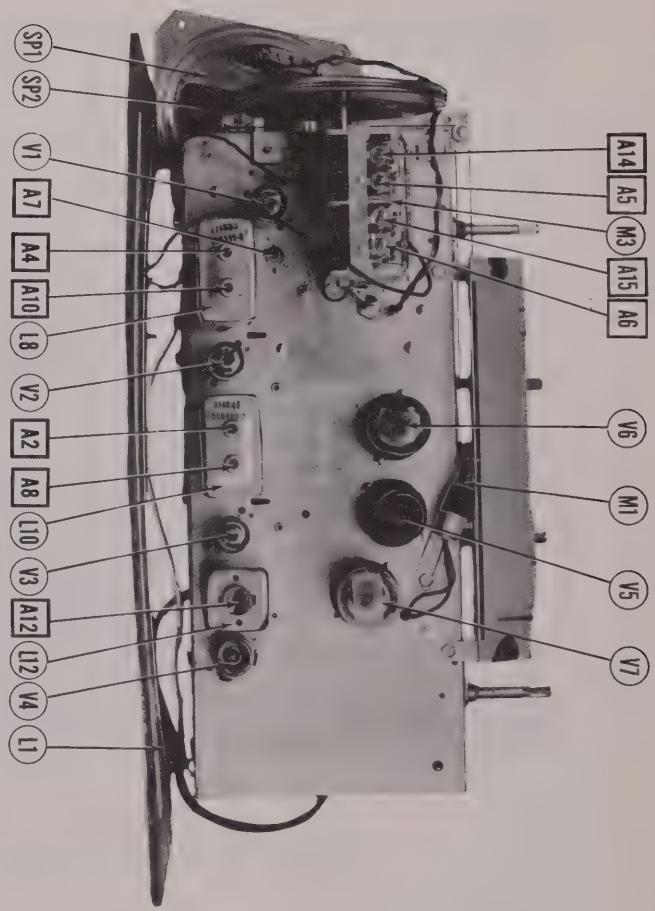
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.5Ω	85B076		46A1	
	CONE DIA.	V. C. DIA.				
SP2	3 7/8" x 5 7/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
L1A	AM Loop Ant.	.2Ω		57D122		Models 84HA1529A, 94HA1529A
B	AM Loop Ant.			57D122-1		Models 84HA1530A, 94HA1530A
L2	FM Ant. Trans.	0Ω		51A1061		
L3	RF Choke	5Ω		53A153		
L4	FM Osc.	0Ω		51A1062		
L5	AM Osc.	5Ω	7Ω	51B1063	14-1060	
L6	RF Choke	5Ω		53A153		
L7	Fil. Choke	5Ω		53A153		

CHASSIS—TOP VIEW



PHOTOFACT* Folder

*TRADE MARK

AIRLINE MODELS 94WG-3006B, 94WG-3009B, 94WG-3022A, 94WG-3026A, 94WG-3029A

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MODEL 94WG-3029A

AIRLINE MODELS 94WG-3006B, 94WG-3009B, 94WG-3022A, 94WG-3026A, 94WG-3029A

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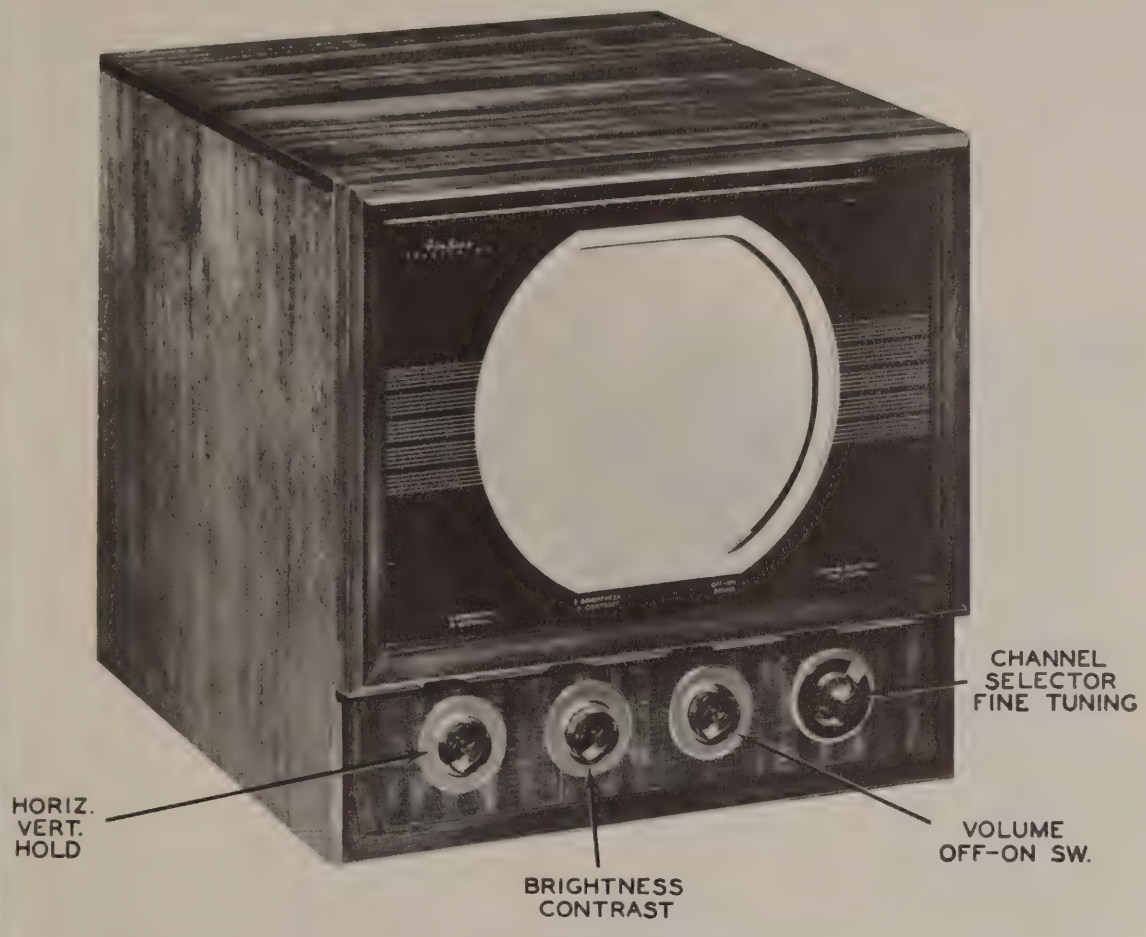

AIRLINE MODEL 94WG-3022A

TRADE NAME	Airline Models 94WG-3006B, 94WG-3009B, 94WG-3022A, 94WG-3026A, 94WG-3029A
SUPPLIER	Montgomery Ward and Co., 619 Chicago,Ave., Chicago, Ill.
TYPE SET	TV Receiver
TUBES	Twenty One
POWER SUPPLY	105-125 Volts AC-60 Cycle
RATING:	1.8 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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AIRLINE MODELS 94WG-3006B, 94WG-3009B, 94WG-3022A, 94WG-3026A, 94WG-3029A

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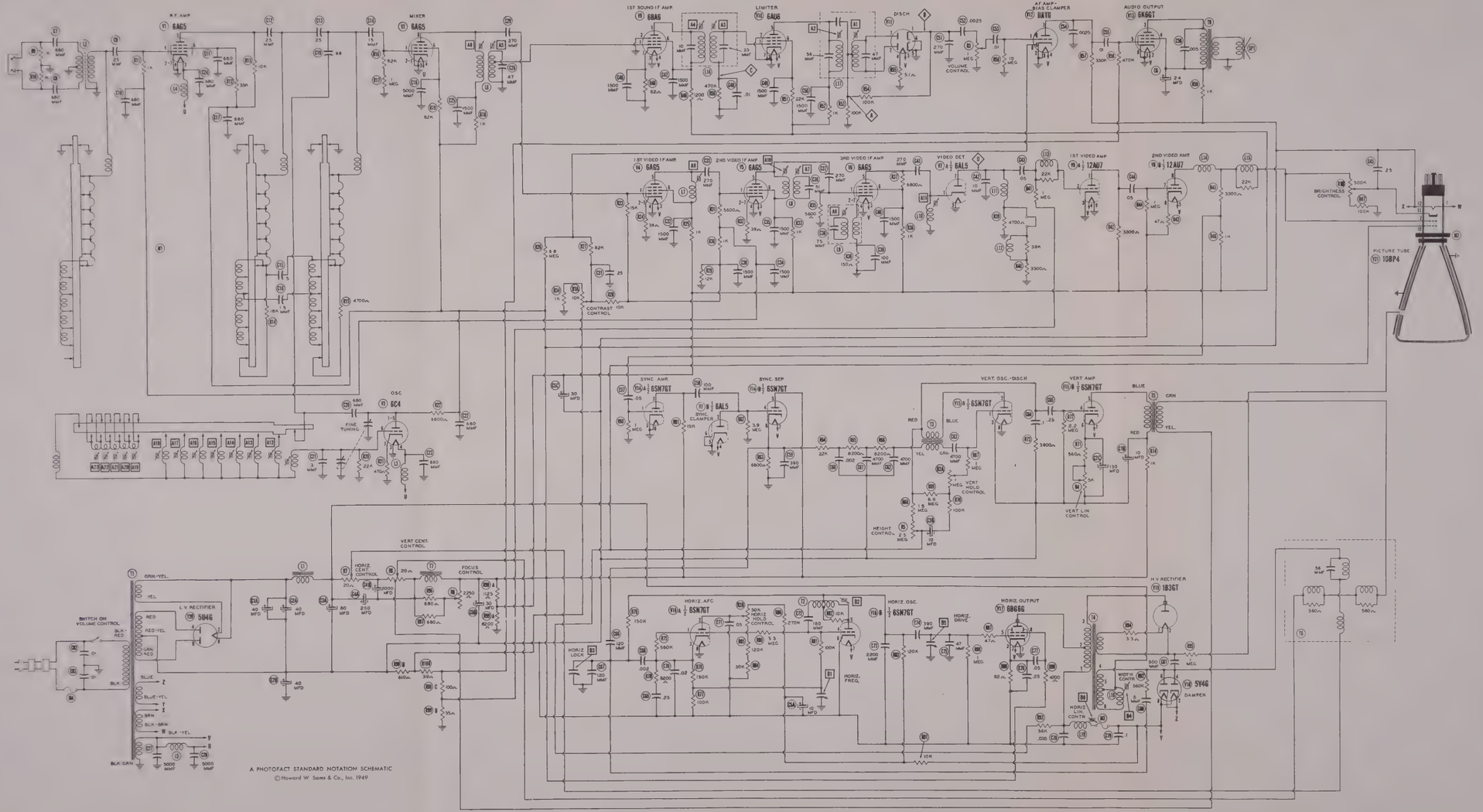

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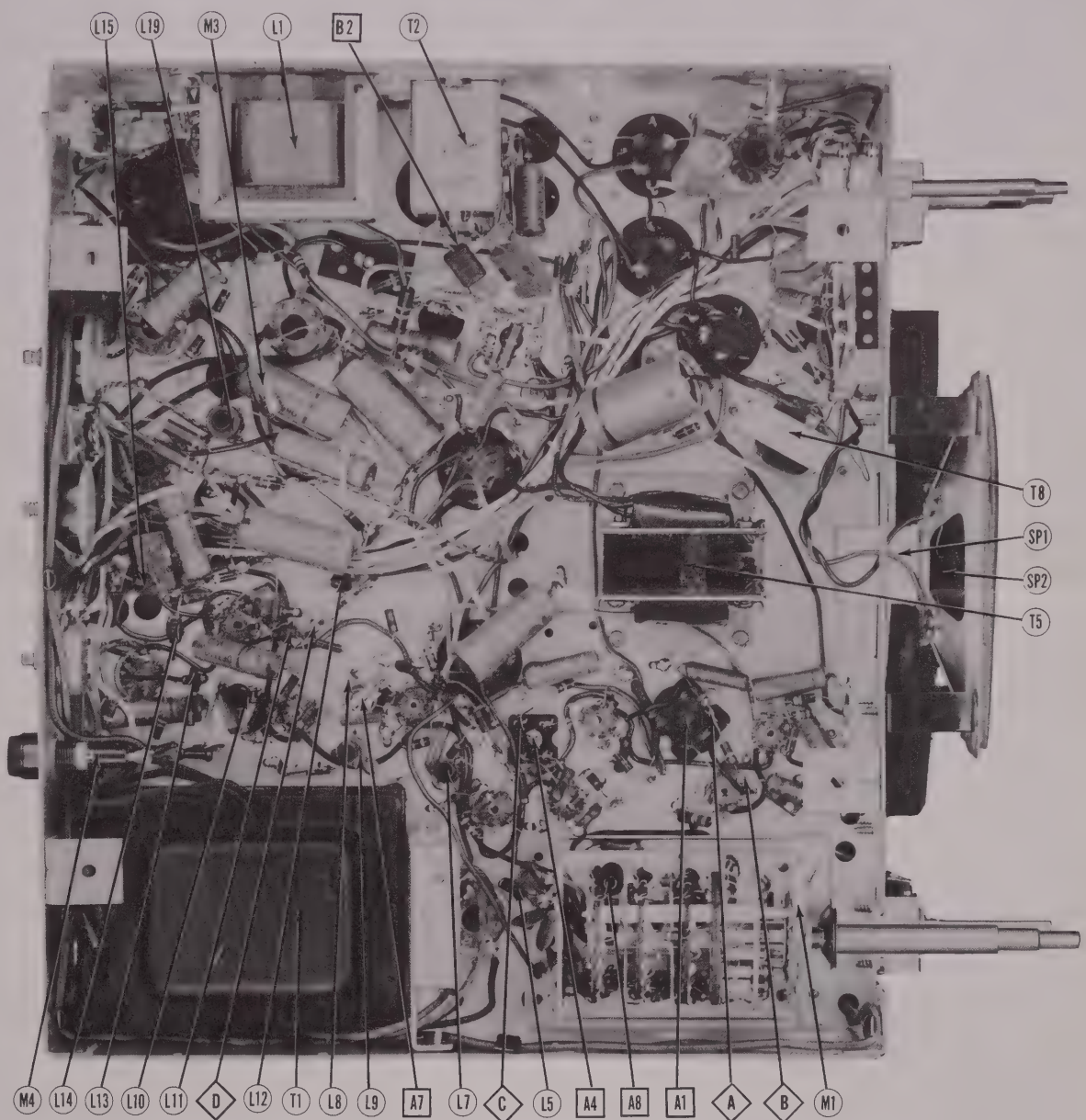
CHASSIS TOP VIEW

AIRLINE MODELS 94WG-3006B, 94WG-3009B, 94WG-3022A, 94WG-3026A, 94WG-3029A



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

AIRLINE MODELS 94WG-3006B, 94WG-3009B, 94WG-3022A, 94WG-3026A, 94WG-3029A

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If receiver is to be aligned with picture tube removed, it is recommended to remove the horizontal oscillator tube 6SN7GT (V16) to eliminate the high voltage shock hazard.

When complete alignment is required, it should be done in the order outlined below.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.05MFD	High side to pin 1 (Grid) of 6AU6 (V10). Low side to chassis.	21.25MC (Unmod.)	13	DC Probe thru 1 Meg to Point Ⓐ Common to chassis.	A1,A2	Detune A1. Adjust A2 for maximum deflection.
2.	.05MFD	"	"	"	DC Probe thru 1 Meg to Point Ⓑ Common to chassis.	A1	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
3.	.05MFD	High side to pin 1 (Grid) of 6BA6 (V9). Low side to chassis.	"	"	DC Probe thru 1 Meg to Point Ⓒ Common to chassis.	A3,A4	Adjust for maximum deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.05MFD	High side to pin 1 (Grid) of 6BA6 (V9). Low side to chassis.	21.25MC (1MC Sweep)	21.25MC	13	Vert. Amp. to Point Ⓒ Low side to chassis.	A3,A4	If 60∿ sweep is used shunt R50 with 5600Ω. Adjust A3 and A4 for maximum amplitude and symmetry as per Fig 1.
2.	.05MFD	"	"	"	"	Vert. Amp. to Point Ⓑ Low side to chassis.	A1,A2	Adjust A1 so 21.25MC marker occurs at center of diagonal line as per Fig. 2. Adjust A2 for maximum amplitude and straightness of diagonal lines. Continue with step 4.

VIDEO IF ALIGNMENT

Before starting video IF alignment, connect VTVM between junction of R28 and R29 and chassis. Adjust contrast control for -3 volts. Leave contrast control at this setting for entire video IF alignment. If receiver is to be used in a fringe area, set contrast control for -1 volt.

Remove local oscillator tube 6C4 (V3) to prevent erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.25MC (Unmod.)	13	DC Probe to Point Ⓓ Common to chassis.	A5,A6	Adjust for MINIMUM deflection.
5.		"	27.25MC	"	"	A7	"
6.		"	22.8MC	"	"	A8	Adjust for maximum deflection.
7.		"	23.9MC	"	"	A9	"
8.		"	26.0MC	"	"	A10	"
9.		"	24.5MC	"	"	A11	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.		High side to ungrounded tube shield floating over mixer tube (V2).	24MC (10MC Sweep)	21.25MC 23.0MC 25.0MC 25.75MC 27.25MC	13	Vert. Amp. to Point Ⓓ Low side to chassis.		Check response curve obtained on scope. If necessary, retouch A5 thru A11 for proper response curve and placement of markers as per Fig 3.

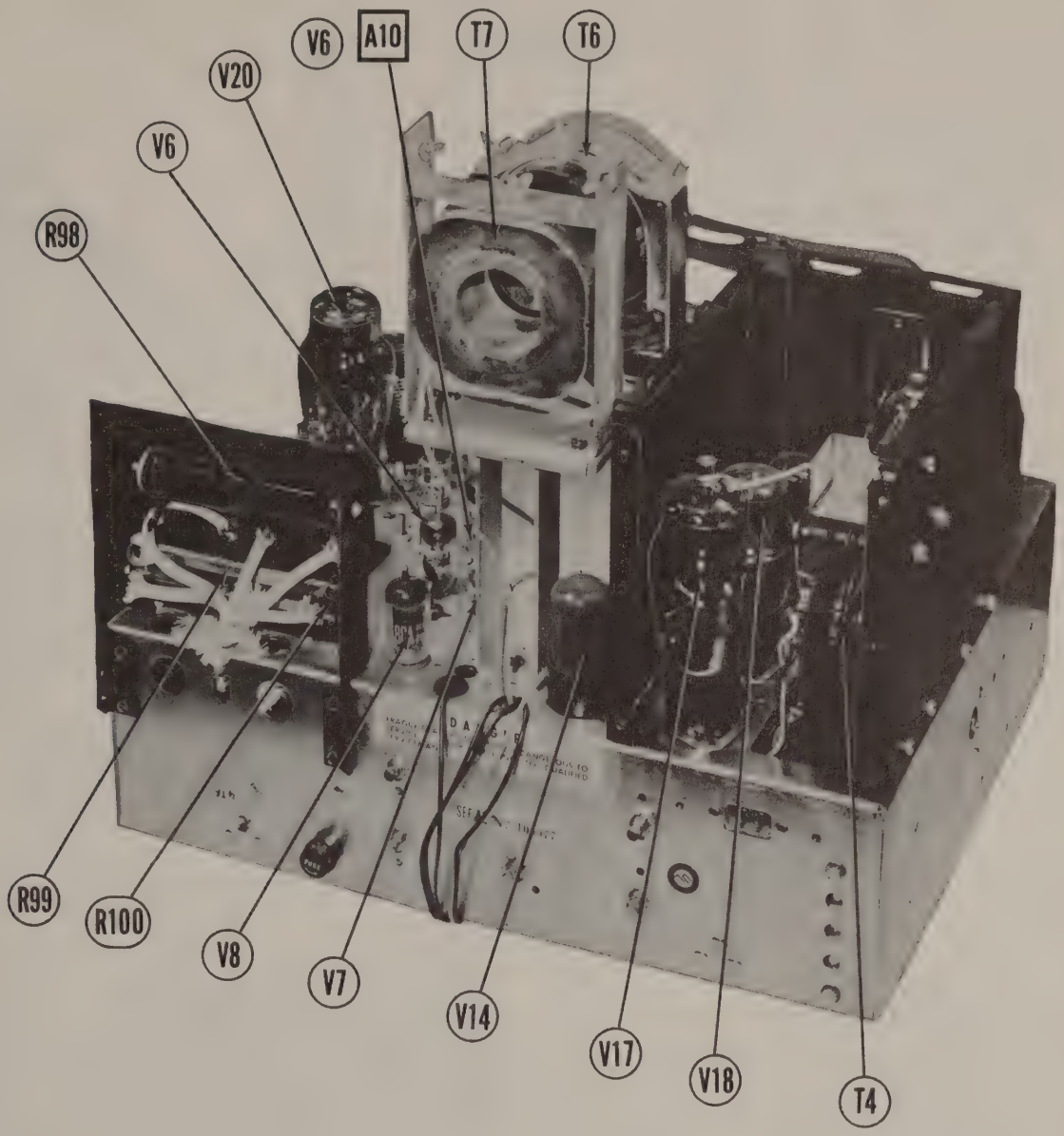
OSCILLATOR ALIGNMENT

The RF and mixer lines in this receiver are pre-set at the factory and normally do not require adjustment in the field.

Prior to aligning the oscillator circuits, the sound IF system must be accurately aligned. Set the fine tuning control to the mid point of its range.

The oscillator slugs (A12-A23) are accessible through holes in the front of the tuner which are identified by the channel numbers.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	Two 125Ω carbon res.	Across antenna terminals with 125Ω in each lead.	215.75MC (Unmod.)	13	DC Probe thru 1 Meg. to Point Ⓑ Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
12.	"	"	209.75MC	12	"	A13	"
			203.75MC	11		A14	
			197.75MC	10		A15	
			191.75MC	9		A16	
			185.75MC	8		A17	
			179.75MC	7		A18	
			87.75MC	6		A19	
			81.75MC	5		A20	
			71.75MC	4		A21	
			65.75MC	3		A22	
			59.75MC	2		A23	



CHASSIS TOP VIEW

FIG. 1

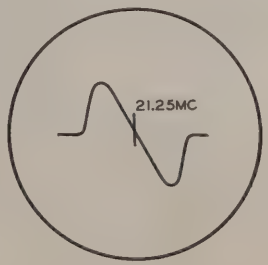


FIG. 2

FIG. 3

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.8VDC	0V	6.3VAC	0V	145VDC	160VDC	0V		
V 2	6AG5	-2.2VDC	0V	0V	6.3VAC	250VDC	135VDC	0V		
V 3	6C4	205VDC	0V	0V	6.3VAC	205VDC	§-.7VDC	4.8VDC		
V 4	6AG5	-.8VDC	.4VDC	6.3VAC	0V	120VDC	120VDC	.4VDC		
V 5	6AG5	-.8VDC	.4VDC	6.3VAC	0V	115VDC	115VDC	.4VDC		
V 6	6AG5	0V	1.2VDC	6.3VAC	0V	75VDC	120VDC	1.2VDC		
V 7	6AL5	0V	-.7VDC	0V	6.3VAC	0V	0V	0V		
V 8	12AU7	115VDC	-.7VDC	0V	6.3VAC	6.3VAC	♦145VDC	♦0V	♦.7VDC	0V
V 9	6BA6	0V	0V	0V	6.3VAC	110VDC	110VDC	1.1VDC		
V 10	6AU6	-.6VDC	0V	0V	6.3VAC	122VDC	82VDC	0V		
V 11	6AL5	0V	-.1VDC	6.3VAC	1.4VAC	0V	0V	-.1VDC		
V 12	6AT6	-.6VDC	0V	0V	6.3VAC	0V	-.1VDC	70VDC		
V 13	6K6GT	0V	6.3VAC	192VDC	200VDC	-5.7VDC	-16VDC	0V	0V	
V 14	6SN7GT	-.7VDC	140VDC	0V	-.8VDC	217VDC	7.3VDC	6.3VAC	0V	
V 15	6SN7GT	♦-7.6VDC	♦60VDC ♦135VDC	♦0V	♦-.1VDC	♦295VDC	♦4.5VDC ♦19VDC	6.3VAC	0V	
V 16	6SN7GT	♦-2.2VDC	♦95VDC	♦-3.1VDC	♦-55VDC	♦150VDC	♦0V	6.3VAC	0V	
V 17	6BG6G	0V	6.3VAC	♦9.1VDC	♦0V	♦0V	0V	0V	♦255VDC	TOP CAP *
V 18	5V4G	0V	320VDC	320VDC	260VDC	0V	260VDC	0V	320VDC	
V 19	1B3GT	* DO NOT MEASURE								
V 20	5U4G	0V	270VDC	0V	320VAC	0V	320VAC	0V	270VDC	
V 21	10BP4	♯150VDC	PIN 10 310VDC	PIN 11 220VDC	PIN 12 ♯150VDC					

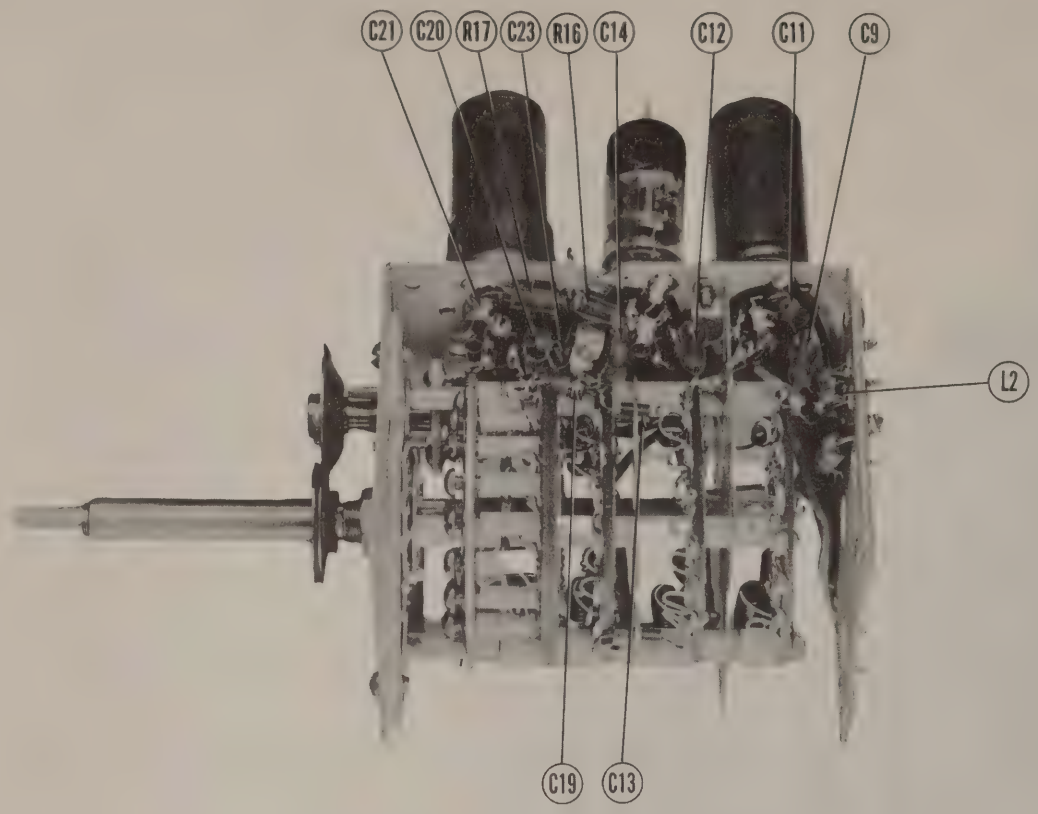
§ Taken with vacuum tube voltmeter.
♦ Measured from pin 6 of V16
♯ 6.3VAC measured across filament.
Note. Contrast control set at maximum for these measurements.

RESISTANCE READINGS

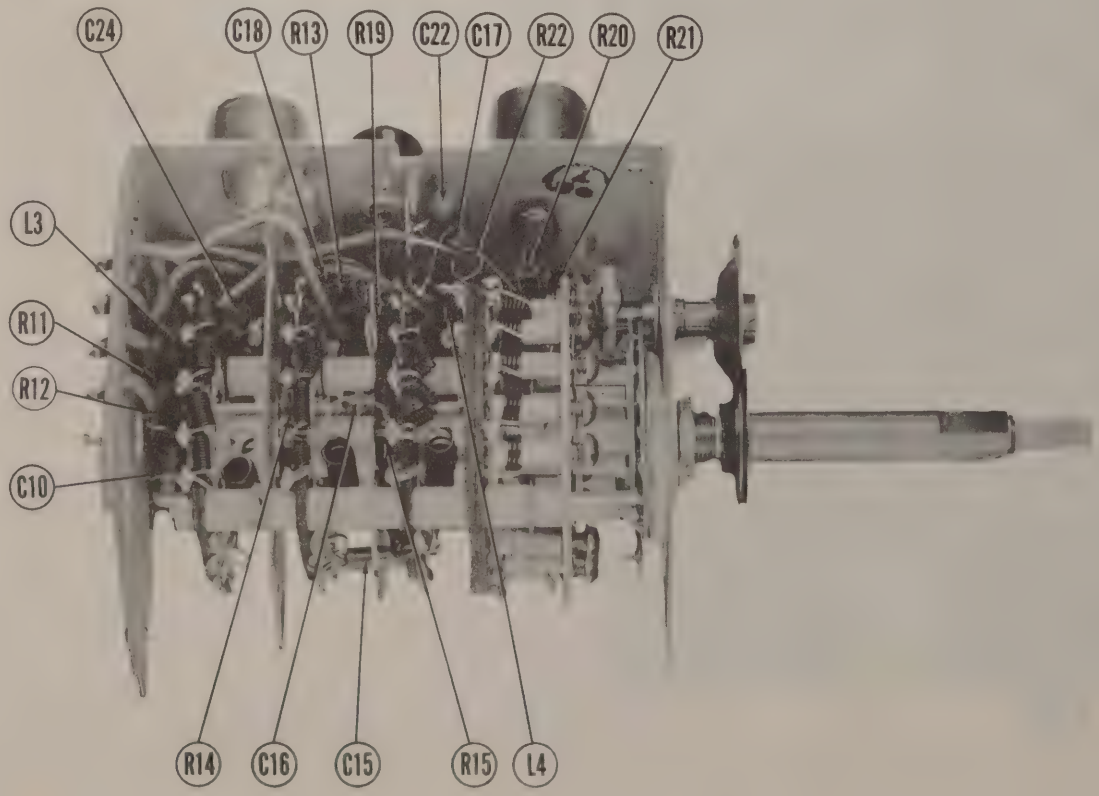
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	8KΩ	0Ω	.1Ω	0Ω	†10KΩ	†33KΩ	0Ω		
V 2	6AG5	1 Meg.	0Ω	0Ω	.1Ω	†1.5KΩ	†82KΩ	0Ω		
V 3	6C4	†6.8KΩ	Inf.	0Ω	.1Ω	†6.8KΩ	22KΩ	470Ω		
V 4	6AG5	22KΩ	39Ω	.1Ω	0Ω	†2.5KΩ	†2.5KΩ	39Ω		
V 5	6AG5	18KΩ	39Ω	.1Ω	0Ω	†2.5KΩ	†2.5KΩ	39Ω		
V 6	6AG5	5.6KΩ	150Ω	.1Ω	0Ω	†9.5KΩ	†2.5KΩ	150Ω		
V 7	6AL5	.1Ω	4 Meg.	0Ω	.1Ω	0Ω	0Ω	2KΩ		
V 8	12AU7	†5KΩ	1 Meg.	0Ω	.1Ω	.1Ω	†6KΩ	1 Meg.	♦47Ω	0Ω
V 9	6BA6	0Ω	0Ω	0Ω	.1Ω	†2.7KΩ	†2.7KΩ	82Ω		
V 10	6AU6	470KΩ	0Ω	0Ω	.1Ω	†2.5KΩ	†23KΩ	0Ω		
V 11	6AL5	200KΩ	100KΩ	.1Ω	2Ω	0Ω	0Ω	100KΩ		
V 12	6AT6	10 Meg.	0Ω	0Ω	.1Ω	Inf.	85KΩ	†330KΩ		
V 13	6K6GT	Inf.	.1Ω	†2KΩ	†1.5KΩ	470KΩ	150Ω	0Ω	0Ω	
V 14	6SN7GT	1 Meg.	†15KΩ	0Ω	4 Meg.	†380Ω	6.8KΩ	.1Ω	0Ω	
V 15	6SN7GT	2 Meg.	♦2.7Meg. ♦1.4Meg.	♦0Ω	2.2 Meg.	†2KΩ	♦5.5KΩ ♦560Ω	.1Ω	0Ω	
V 16	6SN7GT	700KΩ	♦120KΩ	280KΩ	200KΩ	♦130KΩ	800Ω	.1Ω	0Ω	
V 17	6BG6G	Inf.	.1Ω	♦82Ω	1 Meg.	1 Meg.	Inf.	0Ω	†5KΩ	TOP CAP ♦200Ω
V 18	5V4G	Inf.	120KΩ	120KΩ	†58Ω	Inf.	†58Ω	Inf.	120KΩ	
V 19	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ♦ 360Ω
V 20	5U4G	Inf.	9.5KΩ	Inf.	♦20Ω	Inf.	♦18.5Ω	Inf.	9.5KΩ	
V 21	10BP4	†1.5KΩ	†6KΩ	PIN 10 ♦56KΩ	PIN 11 †400Ω	PIN 12 †1.5KΩ				

† Measured from pin 8 of V20
♦ Measured from pin 8 of V18
♦ Measured from pin 6 of V16

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

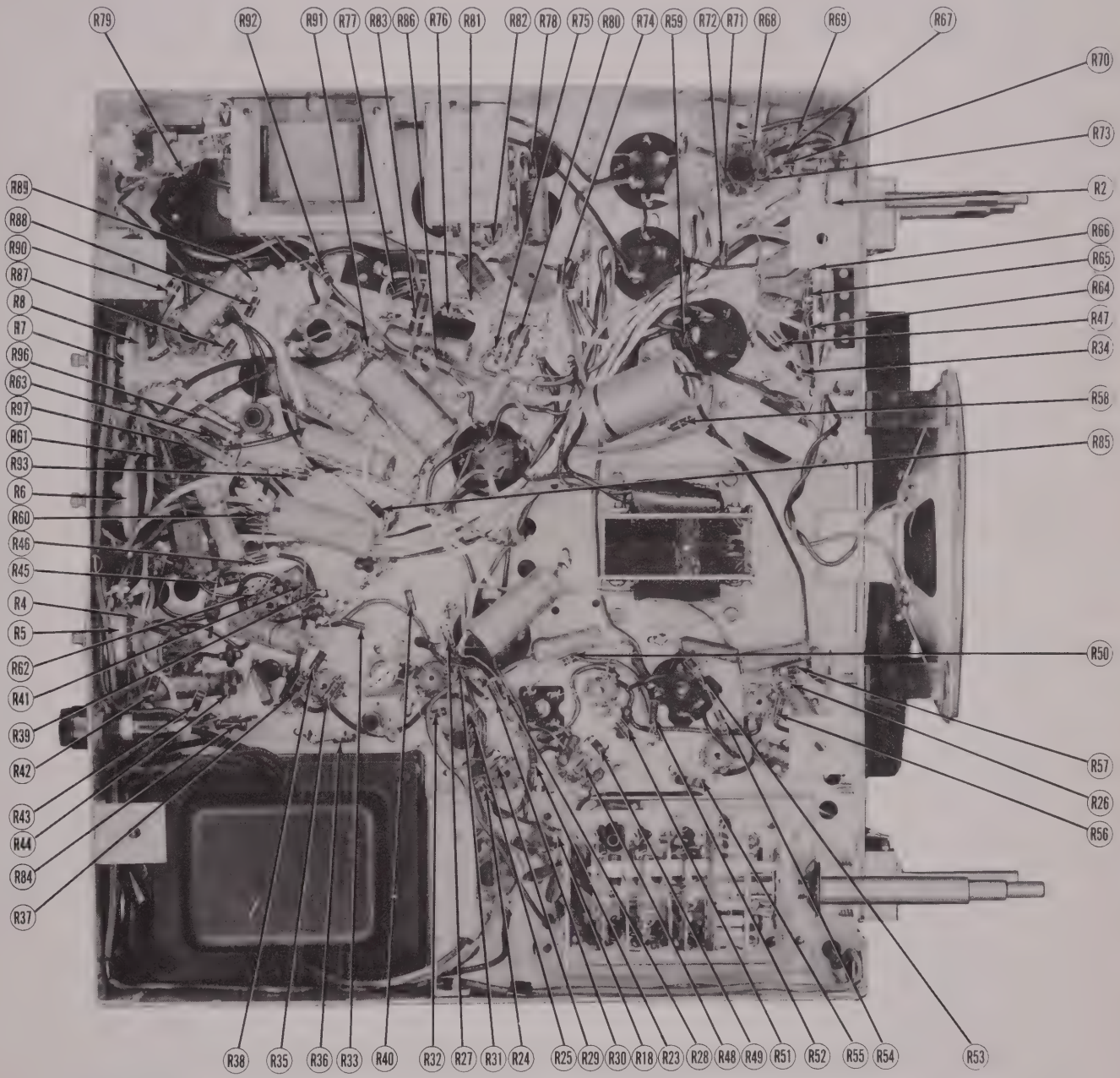


RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

BLOCK DIAGRAM
AF AMP. 1/2 V12
AUDIO OUTPUT V13
DISCRIMINATOR V11
SOUND IF V9
LIMITER V10
VIDEO AMP. V8
VIDEO DET. 1/2 V7
1st VIDEO IF V4
2nd VIDEO IF V5
3rd VIDEO IF V6
VERT. OUTPUT 1/2 V15
VERT. OSC & DISCH. 1/2 V15
SYNC CLAMPER 1/2 V7
SYNC AMP. 1/2 V14
SYNC SEP. 1/2 V14
HOR. OUTPUT V17
DAMPER V18
HV RECT. V19
HOR. OSC 1/2 V16
HOR. AFC 1/2 V16
RF AMP. V1
MIXER V2
OSC V3
BIAS CLAMPER 1/2 V12
LV RECT. V20
B+
B-
V21

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AJ6	6AJ6	7BD	
V2	Mixer	6AD5	6AD5	7BD	
V3A	Oscillator	6C4	6C4	6BO	Used in models 94WG-3006B, 94WG-3009B
B	Oscillator	6AB4	6AB4	6BO	Used in models 94WG-3022A, 94WG-3026A, and 94WG-3029A.
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	Video Detector-Sync. Clamper	6AL5	6AL5	6BT	
V8	1st & 2nd Video Amp	12AU7	12AU7	9A	
V9	Sound IF Amp.	6BA6	6BA6	7BK	
V10	Limiter	6AU6	6AU6	7BK	
V11	Disc.	6AL5	6AL5	6BT	
V12	AF Amp.-Bias Clamper	6AT6	6AT6	7BT	
V13	Audio Output	6K6GT	6K6GT	7S	
V14	Sync. Amp.-Sync. Sep.	6SN7GT	6SN7GT	8BD	
V15	Vert. Osc.-Vert. Disch.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V16	Hor. AFC-Hor. Osc.	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6B66	6B66	5BT	
V18	Damper	5V4G	5V4G	5L	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	
V21A	Picture Tube	10BP4	10BP4	12D	
B	Picture Tube	21EP4	21EP4	16D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	10	450	45X367	AFH50R10	UP7BJ920		TVL-69	▲ Filter
B	10	450						▲ Vert. Output Dec.
C2A	10	450	45X370	AFH50R10S	UP9CJ887		TVL-57	▲ Filter
B	10	450						■ Filter
C	100	50						▲ Vert. Output Cath. Bypass
C3A	10	450	45X369	AFH162J	UP9BJ857		TVL-47	▲ Filter
B	1000	6						▲ Vert. Osc. Decoupling
C4A	10	450	45X368	AFH50R2008	UP7BJ808		TVL-66	▲ Hor. Cent. Cont. Bypass
B	1000	6						▲ Vert. Cent. Cont. Bypass
C5A	10	450	45X371	AFH2J6I6O	UP8CJ898		TVL-56	▲ Decoupling
B	.05	400						■ Filter
C	30	200						▲ Filter
C6	24	200	45X372	PRS350/24	BR2085		UT-203	Output Decoupling
C7	680		47X554			GP2K-680		Ant. Coupling
C8	680		47X554			GP2K-680		Ant. Coupling
C9	25		47X487			GP1K-25		RF Coupling
C10	680		47X554			GP2K-680		Bias Filter
C11	680		47X554			GP2K-680		RF Screen Bypass
C12	25		47X487			GP1K-25		RF Coupling
C13	.25							RF Coupling
C14	.15		47X552			GP1K-15		RF Coupling
C15	.5							RF Coupling
C16	1.5							RF Coupling
C17	680		47X554			GP2K-680		RF Bypass
C18	5000		47X507			811-005	29C1	Conv. Screen Bypass
C19	680		47X554			GP2K-680		Osc. Coupling
C20	.25							Osc. Feedback
C21	680		47X554			GP2K-680		Osc. Feedback
C22	680		47X554			GP2K-680		RF Bypass
C23	680		47X554			GP2K-680		Osc. Fil. Bypass
C24	680		47X554			GP2K-680		Conv. Fil. Bypass
C25	1500		47X545			GP2L-0015		Decoupling
C26	47					NPOM-50		Fixed Trimmer *
C27	5000		47X507	1467-005	1D5D5	811-005	29C1	Filament Bypass
C28	5000		47X507	1467-005	1D5D5	811-005	29C1	Filament Bypass
C29	270	1000	47X534	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C30	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	Bias Filter
C31	.25	400	D65254	P488-25	GT4P25		TM-15	Bias Filter
C32	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	1st V. IF Decoupling
C33	270	1000	47X534	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C34	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	Bias Filter
C35	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoupling
C36	5			5R5C5	NPCM-50		MB-45	Fixed Trimmer †
C37	270	1000	47X534	1468-00025	5W5T25	GP2K-270	1FM-215	IF Coupling
C38	75			1468-000075		NPOM-75		Fixed Trimmer
C39	270		47X546	1468-0001	5W5T1	GP1K-100	1FM-31	3rd V. IF Cath. Bypass
C40	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoupling
C41	270	1000	47X534	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C42	10	600	47X542	1468-00001	5W5Q1	GP1K-10	MB-41	V. Diode Filter
C43	.05	400	D67503	P488-05	GT4S5		TM-15	Video Coupling
C44	.05	400	D67503	P488-05	GT4S5		TM-15	Video Coupling
C45	.25	400	D65254	P488-25	GT4P25		TC-2	Pic. Tube Cath. Dec.
C46	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	1st S. IF Cath. Bypass
C47	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	1st S. IF Dec.
C48	.01	400	D67103	P488-01	GT4S1	GP2-335-01	TM-11	Limiter Grid Filter
C49	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	Limiter Screen Bypass
C50	1500		47X545	1467-0015	1W5D15	GP2L-0015	1FM-215	Limiter Plate Dec.
C51	270	1000	47X534	1468-00025	5W5T25	GP2K-270	1FM-325	RF Bypass
C52	.0025	600	D64252	P688-0022	GT6W3	GP2H-0025	TM-23	Audio Coupling
C53	.01	400	D67103	P488-01	GT4S1	GP2-335-01	TM-11	Audio Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C54	.0025	600	D64252	P688-0022	GT6W3	GP2M-0025	TM-23	De-emphasis
C55	.01	400	D67103	P488-01	GT4S1	GP2-335-01	TM-11	Audio Coupling
C56	.005	600	F65502	P688-005	GT6D5		TM-25	Output Plate Bypass
C57	.05	400	D67503	P488-05	GT6S5		TM-15	Sync. Coupling
C58	100	500	47X544	1468-0001	5W5T1	GP1K-100	1FM-31	Sync. Coupling
C59	390	1000	47X535	1468-0004	5W5T4		1FM-34	Sync. Amp. Cath. Bypass
C60	.002	600	F66202	P688-002	GT6B2	GP2M-002	TM-22	Integrator Net.
C61	4700	500	D65502	1467-005	1D5D5	GP2M-0047	1FM-25	Integrator Net.
C62	4700	500	D65502	1467-005	1D5D5	GP2M-0047	1FM-25	Integrator Net.
C63	4700	500	47X543	1467-005	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C64	.1	1000	46X409	1084-1			FX-11	Vert. Discharge
C65	.25	400	D65254	P488-25	GT4P25		TC-2	Vert. Sweep Coupling
C66	120	500	47X532			GP2K-120		Hor. Sync. Coupling
C67	120	500	47X532			GP2K-120		Voltage Divider
C68	.002	600	F66202	P688-002	GT6B2	GP2M-002	TM-22	Hor. Sync. Coupling
C69	.25	400	D65254	P488-25	GT4P25		TC-2	AFC Filter
C70	.02	400	D65202	P488-02	GT4S2		TM-12	AFC Filter
C71	.05	400	D67503	P488-05	GT4S5		TM-15	AFC Plate Bypass
C72	180	1000	47X536					Hor. Osc. Grid Cap.
C73	2200	1000	47X531					Hor. Discharge
C74	390	1000	47X535	1468-0004	5W5T4		1FM-34	Hor. Sweep Coupling
C75	47	500	47X541	1468-00005	5W5S5	GP1K-47	1FM-45	Voltage Divider
C76	.25	400	D65254	P488-25	GT4P25		TC-2	Hor. Output Cath. Bypass
C77	.05	600	F67503	P688-05	GT6S5		TM-15	Hor. Output Screen Bypass
C78	.035	1000	46X408					Damper Filter
C79	.1	1000	46X409	1084-1			FX-11	Damper Filter
C80	5	1500	47X533					AFC Feedback
C81	500	10000	47X530			410-500		HV Filter
C82	.01	400	46X410	P488-01	GT4S1		TM-11	Line Filter
C83	.01	400	46X410	P488-01	GT4S1		TM-11	Line Filter

* Some models use 62MMF in this application.
† Some models use 56MMF in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	10KΩ	½	78X1	B11-116 *		Contrast Control, Front (Dual Concentric)
B	500KΩ	½		B11-133 *		Brightness control, rear
C	Shaft End			E167 *		Attach per instructions in "Concentrikit".
R2A	1 Meg.	½	78X2	B11-137 *		Vert. hold control, front (Dual Concentric)
B	50KΩ	½		B11-123 *		Horiz. hold control, rear
C	Shaft End			E167 *		Attach per instructions in "Concentrikit".
R3A	1 Meg.	½	36X378	Q13-137	M-63-Z	Volume control
B	Switch		Not Req.	76-1	SW-A	Attach to R3A per instructions
R4	50000Ω	½	77X4	Q11-114	M-19-S	Vert. linearity control
R5	2.5Meg.	½	77X3	Q11-239	M-84-S	Height control
R6	20Ω	2	77X2	W-20X10	58-20 CT	Vert. centering, control tapped @ 10Ω Wire Wound
R7	20Ω	2	77X5	W-20	43-20	Horiz. centering control, Wire Wound
R8	2250Ω	4	77X1		10-2500	Focus control, Wire Wound

* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED
R9	10000Ω 20%	½	B85102	BTS-1000	Ant. Isolation
R10	10000Ω 20%	½	B85102	BTS-1000	Ant. Isolation
R11	10000Ω 20%	½	B85102		RF Grid
R12	33KΩ 20%	½	B85333		RF Screen
R13	10KΩ 20%	1	C85103		RF Plate
R14	18KΩ	½	C85183	BTS-18K	RF Plate Coil Shunt
R15	47000Ω 20%	½	C85472		Mixer Grid Coil Shunt
R16	82KΩ 20%	½	C85823		Mixer Grid
R17	1 Meg. 20%	½	C85105		Mixer Grid
R18	10000Ω 20%	½	C85102	BTS-1000	Mixer Plate Decoupling
R19	82KΩ 20%	½	C85823		Mixer Screen
R20	22KΩ 20%	½	C85223		Osc. Grid
R21	470Ω 20%	½	C85471		Osc. Cathode
R22	68000Ω 20%	½	C85682		Osc. Plate
R23	15KΩ 5%	1	32B3153		1st Video IF Grid
R24	39Ω	½	32B4390		1st Video IF Cathode
R25	10000Ω 20%	½	32B5102		1st Video IF Decoupling
R26	6.8 Meg.	½	32B4685	BTS-6.8 Meg.	Voltage Divider See Note 2
R27	82KΩ	½	32B4823	BTS-82K	Bias Network See Note 2
R28	10KΩ	½	32B4103	BTS-10K	Bias Network
R29	12KΩ	½	32B4123	BTS-12K	Bias Network
R30	10000Ω 20%	½	32B5102	BTS-1000	Bias Network
R31	56000Ω 5%	½	32B3562		2nd Video IF Grid
R32	39Ω	½	32B4390		2nd Video IF Cathode
R33	10000Ω 20%	½	32B5102		2nd Video IF Decoupling
R34	10000Ω	½	32B4102	BTS-1000	Voltage Divider
R35	56000Ω 5%	½	32B3562		3rd Video IF Grid
R36	150Ω	½	32B4151		3rd Video IF Cathode
R37	68000Ω 20%	½	32B3682		3rd Video IF Plate
R38	10000Ω 20%	½	32B5102	BTS-1000	3rd Video IF Decoupling
R39	47000Ω 5%	½	32B4472	BTS-4700-5%	Video Det. Diode Load
R40	33000Ω 5%	½	32B4332	BTS-3300-5%	Video Det. Diode Load
R41	1 Meg. 20%	½	32B5105	BTS-1 Meg.	1st Video Amp. Grid
R42	3300Ω	½	32B4332	BTS-3300	1st Video Amp. Plate
R43	47Ω 20%	½	32B5470	BW-½-47	2nd Video Amp. Cathode
R44	1 Meg. 20%	½	32B5105	BTS-1 Meg.	2nd Video Amp. Grid
R45	3300Ω	1	32C4332	BTA-3300	2nd Video Amp. Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R46	100Ω	½	32B4102	BTS-1000	2nd Video Amp. Plate
R47	100KΩ 20%	½	32B5104	BTS-100K	Voltage Divider
R48	82Ω	½	32B4820		1st Sound IF Cathode
R49	1200Ω	½	32B4122		1st Sound IF Decoupling
R50	470KΩ 20%	½	32B5474		2nd Sound IF Grid
R51	22KΩ 20%	½	32B5223		2nd Sound IF Screen
R52	1000Ω 20%	½	32B5102		2nd Sound IF Plate Decoupling
R53	100KΩ 5%	½	32B3104	BTS-100K-5%	Disc. Diode Load
R54	100KΩ 5%	½	32B3104	BTS-100K-5%	Disc. Diode Load
R55	5.1Ω	½	43X239	BW-½-4.7	Disc. Filament (Wire Wound)
R56	10 Meg.20%	½	32B5106	BTS-10 Meg.	AF Grid
R57	330KΩ	½	32B4334	BTS-330K	AF Plate
R58	470KΩ 20%	½	32B5474	BTS-470K	Output Grid
R59	1000Ω 20%	1	32C5102	BW-1-1000	Filter
R60	1 Meg.20%	½	32B5105	BTS-1 Meg.	Sync. Amp. Grid
R61	15KΩ 20%	1	32C5153	BTA-15K	Sync. Amp. Plate
R62	3.9 Meg.	½	32B4395	BTS-3.9 Meg.	Sync. Sep. Grid
R63	6800Ω 5%	½	32B3682	BTS-6800-5%	Sync. Sep. Cathode
R64	22KΩ 20%	½	32B5223	BTS-22K	Integrator
R65	8200Ω	½	32B4822	BTS-8200	Integrator
R66	8200Ω	½	32B4822	BTS-8200	Integrator
R67	1 Meg.5%	½	32B3105	BTS-1 Meg-5%	Vert. Osc. Grid
R68	1.5 Meg.	½	32B4155	BTS-1.5 Meg.	Voltage Divider
R69	6.8Meg.20%	½	32B5685	BTS-6.8 Meg.	Voltage Divider
R70	100KΩ	½	32B4104	BTS-100K	Voltage Divider
R71	560Ω	½	32B4561	BTS-560	Vert. Amp. Cathode
R72	2.2Meg.20%	½	32B5225	BTS-2.2 Meg.	Vert. Amp. Grid
R73	3900Ω	½	32B4392	BTS-3900	Vert. Peaking
R74	1000Ω 20%	½	32B5102	BTS-1000	Filter See Note 1
R75	560KΩ 5%	½	32B4564	BTS-560K-5%	Horiz. AFC Grid
R76	180KΩ	½	32B4184	BTS-180K	Horiz. AFC Cathode
R77	100KΩ 5%	1	32C3104	BTA-100K-5%	Horiz. AFC Cathode
R78	8200Ω	½	32B4822	BTS-8200	Horiz. AFC Filter Network
R79	150KΩ	½	32B4154	BTS-150K	Horiz. AFC Filter Network
R80	3.3Meg.5%	1	32C3335	BTA-3.3Meg. 5%	Voltage Divider
R81	100KΩ 1%	½	31B1104		Horiz. Osc. Grid
R82	10KΩ	½	32B4103	BTS-10K	Horiz. Osc. Transformer Shunt
R83	120KΩ	1	32C4124	BTA-120K	Horiz. Osc. Plate
R84	30KΩ	½	34A1		Voltage Divider Temp. Comp.
R85	120KΩ	½	32B4124	BTS-120K	Voltage Divider
R86	270KΩ	1	32C4274	BTA-270K	Voltage Divider
R87	472 20%	½	32B5470		Parasitic Supp.
R88	1 Meg. 20%	½	32B5105	BTS-1 Meg.	Horiz. Output Grid
R89	82Ω	1	32C4820	BW-1-82	Horiz. Output Cathode (Wire Wound)
R90	4700Ω	1	32C4472	BTA-4700	Horiz. Output Screen
R91	10KΩ	½	32B4103	BTS-10K	Filter
R92	560KΩ	½	32B4564	BTS-560K	Feedback
R93	56KΩ	½	32B4563	BTS-56K	Feedback
R94	3.3Ω	2	43X239		HV Filament (Wire Wound)
R95	1 Meg. 20%	1	32C5105		HV Filter
R96	680Ω 20%	1	32C5681	BTA-680	Focus Coil Shunt
R97	680Ω 20%	1	32C5681	BTA-680	Focus Coil Shunt
R98A	1125Ω	20	43X234		Filter (Wire Wound)
B	610Ω	20			Bias Network (Wire Wound)
R99A	8200Ω	5		AB-8000	Bleeder (Wire Wound)
B	35Ω	.8	43X235	BW-1-33	Voltage Divider (Wire Wound)
C	100Ω	2		BW-2-100	Bias Network (Wire Wound)
R100	39Ω	1	32C4390	BW-1-39	Bias Network

Note 1. This value is 2200Ω in some models.
Note 2. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC @ 1.8A	730VCT .25ADC	5VAC @ 3A	5VAC @ 2A	53X297	P-8153	P-3063	TP-355
		SEC. 1	SEC. 2	SEC. 3				
		6.3VAC @ 6.1A	6.3VAC @ .6A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	NOTES
T2	150Ω		9A1984				Hor.Osc.Transformer
	Tap @ 41Ω						
T3	165Ω	1310Ω	54X4	A-8121	A-4000	TSO-1	Vert.Osc.Transformer
T4	420Ω	SEC. 1	53X296	A-8117		TPB-2	Hor.Output Transformer
	Tap @ 180Ω	10.6Ω					
		Tap @ .6Ω					
		SEC. 2					
		0Ω					
TS	590Ω	72	51X140	A-8115	A-3035	TSO-1	Vert.Output Transformer
TSA	142		9A1987	DY-1			Hor.Deflection Coil
B	63Ω						Vert.Deflection Coil
T7	364Ω		9A1974	FC-10			Focus Coil

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T8	6200Ω	3.2Ω	350Ω	.5Ω	51X139	A-3878	A-2931	RO-13	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	3.2Ω	12A490 §	ST-102 MOD.P12-S‡	12A6A	‡ Replace output transformer to match 6-8Ω voice coil.
B	PM	3.2Ω	12A491 #		46A1	# Used in table model.
	CONE DIA.	V. C. DIA.				§ Used in console model.
SP2A	11 1/2"	1"				
B	4" x 6"	9/16"				

FILTER CHOKE

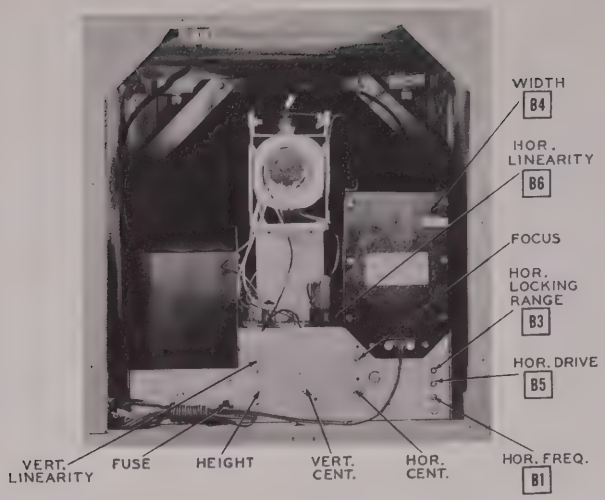
ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.250A	62Ω	2.2Henries	52X87	C-2326	C-2991	TR-3300	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω				Part of tuner.
L3	Fil. Choke	.1Ω				Part of tuner.
L4	Fil. Choke	.1Ω				Part of tuner.
L5	Fil. Choke	.1Ω		9A2023		
L6	1st Video IF-Sound Take-Off	0Ω	0Ω	9A2035		
L7	2nd Video IF	.1Ω		9A1980		
L8	3rd Video IF	.1Ω	0Ω	9A1982		
L9	Sound Trap	0Ω	0Ω	9A1985		
L10	4th Video IF	.1Ω		9A1980		
L11	Peaking	2.8Ω		9A1979		36 microhenries
L12	Peaking	6.2Ω		9A1977		180 microhenries. Wound on 39KΩ resistor
L13	Peaking	5.6Ω		9A1978		120 microhenries. Wound on 22KΩ resistor
L14	Peaking	2.8Ω		9A1979		36 microhenries.
L15	Peaking	5.6Ω		9A1978		120 microhenries. Wound on 22KΩ resistor
L16	Sound IF	0Ω	.1Ω	9A1986		
L17	Disc.Trans.	0Ω	0Ω	9A1983		
L18	Width Cont.	.1Ω		9A1976		
L19	Hor.Linearity	36Ω		9A1981		

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M1A	RF Tuner	S-25A5	Used in models 94WG-3006B, 94WG-3009B
B	RF Tuner	S-25A3	Used in models 94WG-3022A, 94WG-3026A, 94WG-3029A.
M2	Ion Trap	2A382	
M3	Fuse	16X133	Type GJV .25A
M4	Fuse	16X132	Type AGC 3A
	Escutcheon	4X1028	Mahogany, Channel
	Escutcheon	4X1029	Mahogany, Vert. and Horiz.
	Escutcheon	4X1038	Blond, Channel
	Escutcheon	4X1039	Blond, Vert. and Horiz.
	Knob	10A714	Brightness and Horizontal for Mahogany Cabinets
	Knob	10A715	On-Off Sound for Mahogany Cabinets.
	Knob	10A716	Contrast, Vertical On-Off Sound for Mahogany Cabinets.
	Knob	10A717	Fine Tuning for Mahogany cabinets.
	Knob	10A718	Channel Selector for Mahogany Cabinets.
	Knob	10A723	Fine Tuning for Blond Cabinets.
	Knob	10A724	Brightness and Horizontal for Blond Cabinets.
	Knob	10A725	Contrast, Vertical and On-Off Sound for Blond Cabinets.
	Knob	10A726	On-Off Sound for Blond Cabinets.
	Knob	10A727	Channel Selector for Blond Cabinets.
	Safety Glass	17X101	



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK

Tune in test pattern and turn horizontal hold control to extreme counter-clockwise position. Picture should remain in synchronization. Turn channel switch to another channel and then back to the original channel. Normally, the picture should be out of sync. Turn the hold control clockwise and the picture should slowly begin to synchronize and finally lock-in. This should occur when the control is approximately 90° from the extreme counter-clockwise position. The picture should remain in sync for another 90° in the clockwise direction of the control. At the extreme clockwise position the picture should again drop out of synchronization and 3½ to 4½ bars should be seen sloping downward to the right. If the receiver fails to hold synchronization during this check with the hold control at the extreme counter-clockwise position or fails to hold synchronization for at least 60° in the clockwise direction from the point when it drops into sync, it will be necessary to align the horizontal oscillator circuit as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT

Turn the horizontal hold control to the extreme clockwise position. Tune in a test pattern and adjust trimmer B1 until the picture is out of sync and shows 3½ to 4½ bars sloping downward to the right. If the trimmer has insufficient range, set it to its mid-position (one turn from tight) and adjust slug B2 until bars appear.

(B) HORIZONTAL LOCKING ALIGNMENT

Turn the horizontal hold control to the fully counter-clockwise position. Switch to another channel and back to the original again. Slowly turn the hold control clockwise and note the least number of diagonal bars present just before the picture syncs. If more than 4½ bars are present just before the picture syncs, adjust trimmer B3 slightly clockwise. If less than 3½ bars are present, adjust B3 slightly counter-clockwise and switch the channel selector to another channel and back again. Recount bars present just before the "lock-in" point. Repeat this procedure until 3½ to 4½ bars are present. Repeat steps (A) and (B) until conditions exist as outlined under "Horizontal Oscillator Alignment Check".

WIDTH, DRIVE , & HORIZONTAL LINEARITY ADJUSTMENTS

Turn the width control B4 to maximum clockwise position. Adjust trimmer B5 for maximum brightness and linearity. Adjust horizontal linearity B6 for best linearity in the right half of the picture. Readjust the width control until the picture fills the mask.

DAVID BOGEN MODEL E66

DAVID BOGEN MODEL E66

DAVID BOGEN MODEL E66

TRADE NAME	David Bogen, Model E66
MANUFACTURER	David Bogen Co., Inc., 663 Broadway, New York 12, New York
TYPE SET	AC or Storage Battery Operated Two Channel Amplifier
TUBES (FOUR)	Types 6SJ7 Mic. Pre-Amp., 6SL7GT AF Amp., 6L6GA Power Output, 6X5GT Rectifier
POWER SUPPLY	117 Volts AC or 6Volt Storage Battery
RATING	.46 Amp. at 117 Volts AC or 7.1 Amp. at 6 Volts DC

INPUTS

MICROPHONE: A high impedance microphone, such as crystal or Dynamic may be connected directly to the input microphone connector. A shielded microphone cable is essential.

PHONOGRAPH: A high impedance phonograph pickup may be connected to the jack on the side of the amplifier by means of a plug. Inserting the phonograph plug automatically disconnects the microphone.

OUTPUT

A speaker having its own field supply or a PM type should be used. Connect the voice coil to the speaker socket selecting the proper impedance of 4, 8 or 15 ohms.

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PARTS LIST AND DESCRIPTIONS

DAVID BOGEN
MODEL E66

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Mic. Pre Amp.	6SJ7	6SJ7	8N	
V2	AF Amp.	6SL7GT	6SL7GT	8BD	
V3	Power Output	6L6GA	6L6GA	7AC	
V4	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DAVID BOGEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	5	450		AF2222J	UP5Q45		EL-410	● Filter
B	5	450						■ Filter
C	5	450						▲ Filter
D	5	450						Filter
C2	8	450		PRS450/8	BR845A		UT-8	Decoupling
C3	25	25		PRS25/25	BR252A		TVA-6	Pre-Amp. Cathode Bypass
C4	10	25		PRS25/10	BR102A		TVA-5	AF Amp. Cathode Bypass
C5	50	50		PRS50/50	BR505		TVA-16	Output Cathode Bypass
C6	.05	400		P488-05	GT4S5		TM-15	Pre-Amp. Screen Bypass
C7	.05	400		P488-05	GT4S5		TM-15	Audio Coupling
C8	.05	400		P488-05	GT4S5		TM-15	Audio Coupling
C9	.05	400		P488-05	GT4S5		TM-15	Audio Coupling
C10	.02	1200		P1688-02	GT16S2		MB-12	Buffer
C11	.05	400		P488-05	GT4S5		TM-15	Hash Filter
C12	.25	200		P488-25	GT2P25		TC-2	Hash Filter
C13	.001	600		P688-001	GT6D1	GP2L-001	TM-11	Hash Filter

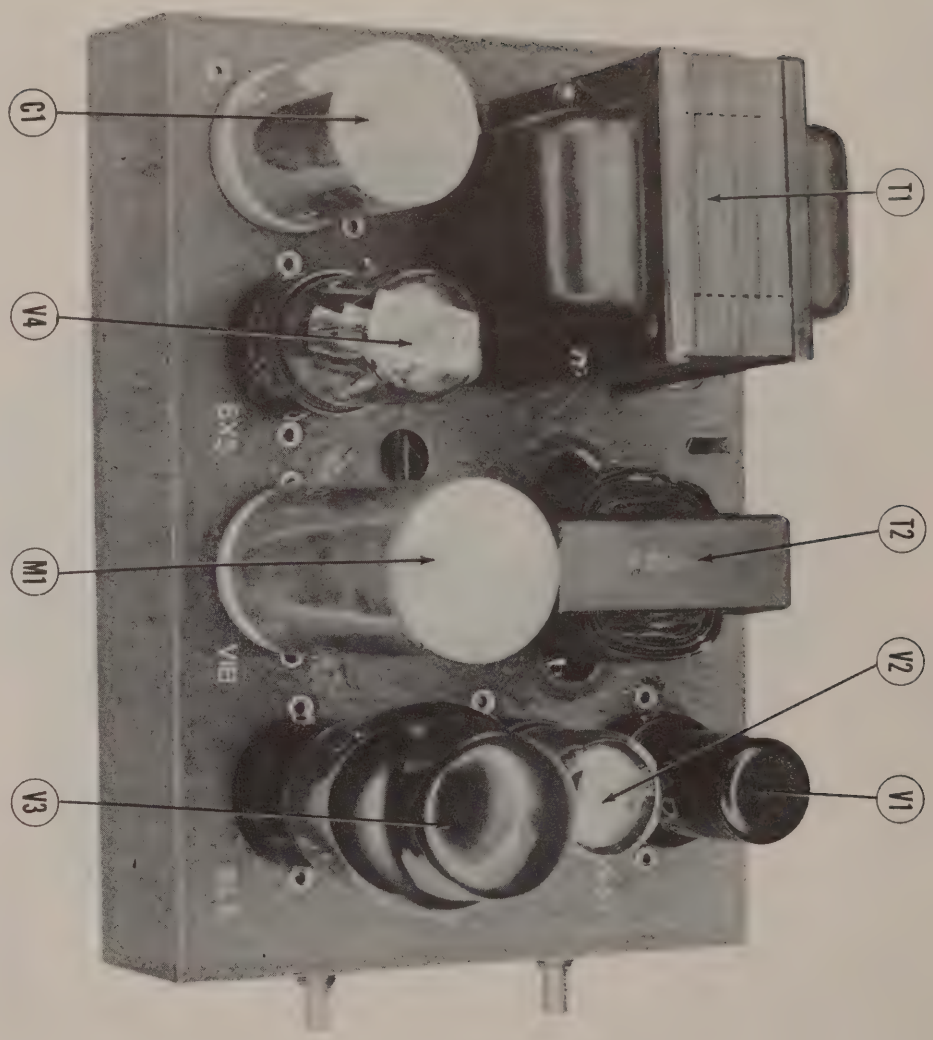
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1	500KΩ	½	V-202A	Q13-133	M-60-Z	Volume control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DAVID BOGEN PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R2	500KΩ	½		BTS-470K	Mic. Pre Amp. Grid
R3	820Ω	½		BTS-820	Mic. Pre Amp. Cathode
R4	500KΩ	½		BTS-470K	Mic. Pre Amp. Screen
R5	100KΩ	½		BTS-100K	Mic. Pre Amp. Plate
R6	4700Ω	½		BTS-4700	AF Cathode
R7	220KΩ	1		BTA-220K	AF Plate
R8	500KΩ	½		BTS-470K	AF Grid
R9	4700Ω	½		BTS-4700	Feedback
R10	500KΩ	½		BTS-470K	Feedback
R11	220KΩ	1		BTA-220K	AF Plate
R12	100KΩ	1		BTA-100K	Decoupling
R13	500KΩ	½		BTS-470K	Output Grid
R14	270Ω	2		BW-2-270	Output Cathode-Wire Wound
R15	5100Ω	1		BW-1-4700	Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	DAVID BOGEN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC at .46A or 6VDC at 7.1A	550VCT .072ADC	8.7V Tap at 6.3 VAC at 2.1A		T327B			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DAVID BOGEN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	5.2KΩ	15Ω 8Ω 4Ω	137Ω	.6Ω .4Ω .3Ω	T262	A-3310 ‡	A-2905 †	RO-305	† Drill one new mounting hole. ‡ Drill new mounting holes.

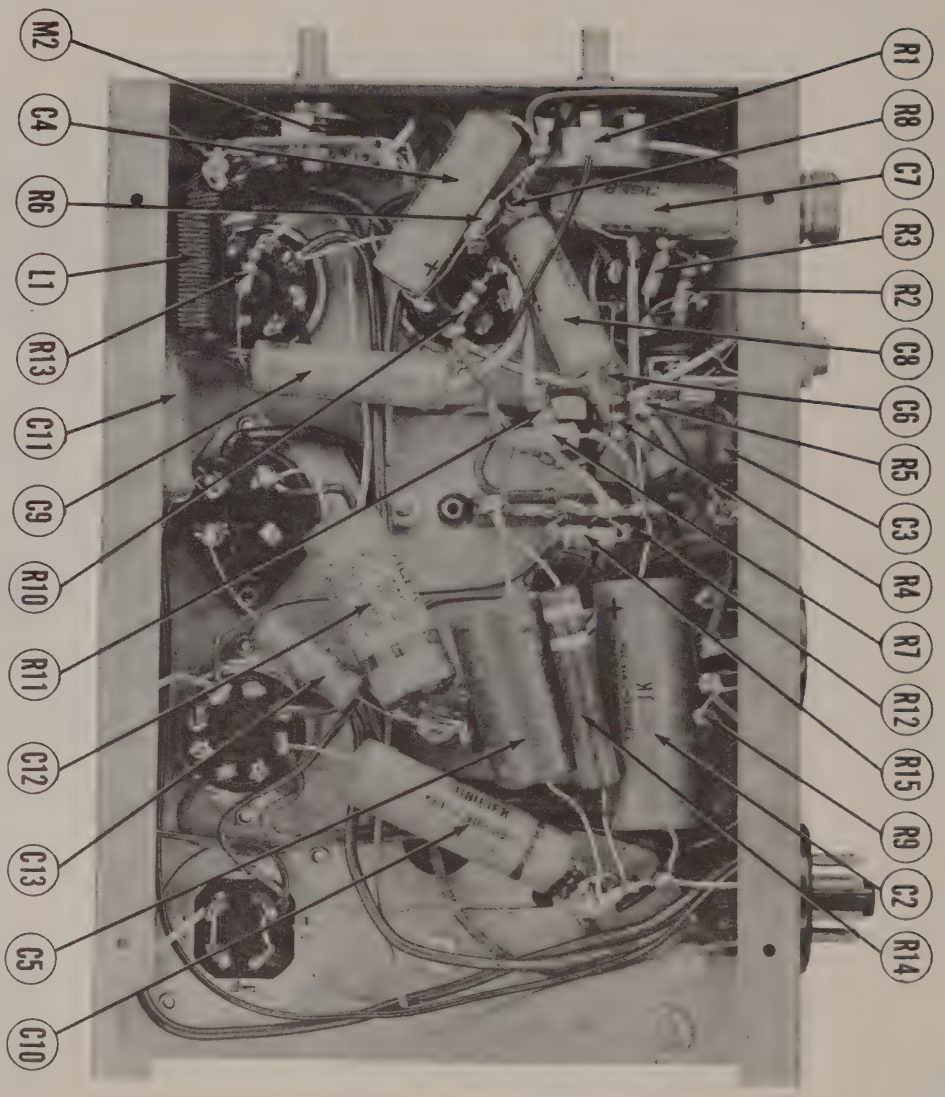
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				D. BOGEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6V	115~	H506	A-100	C-00	5300	

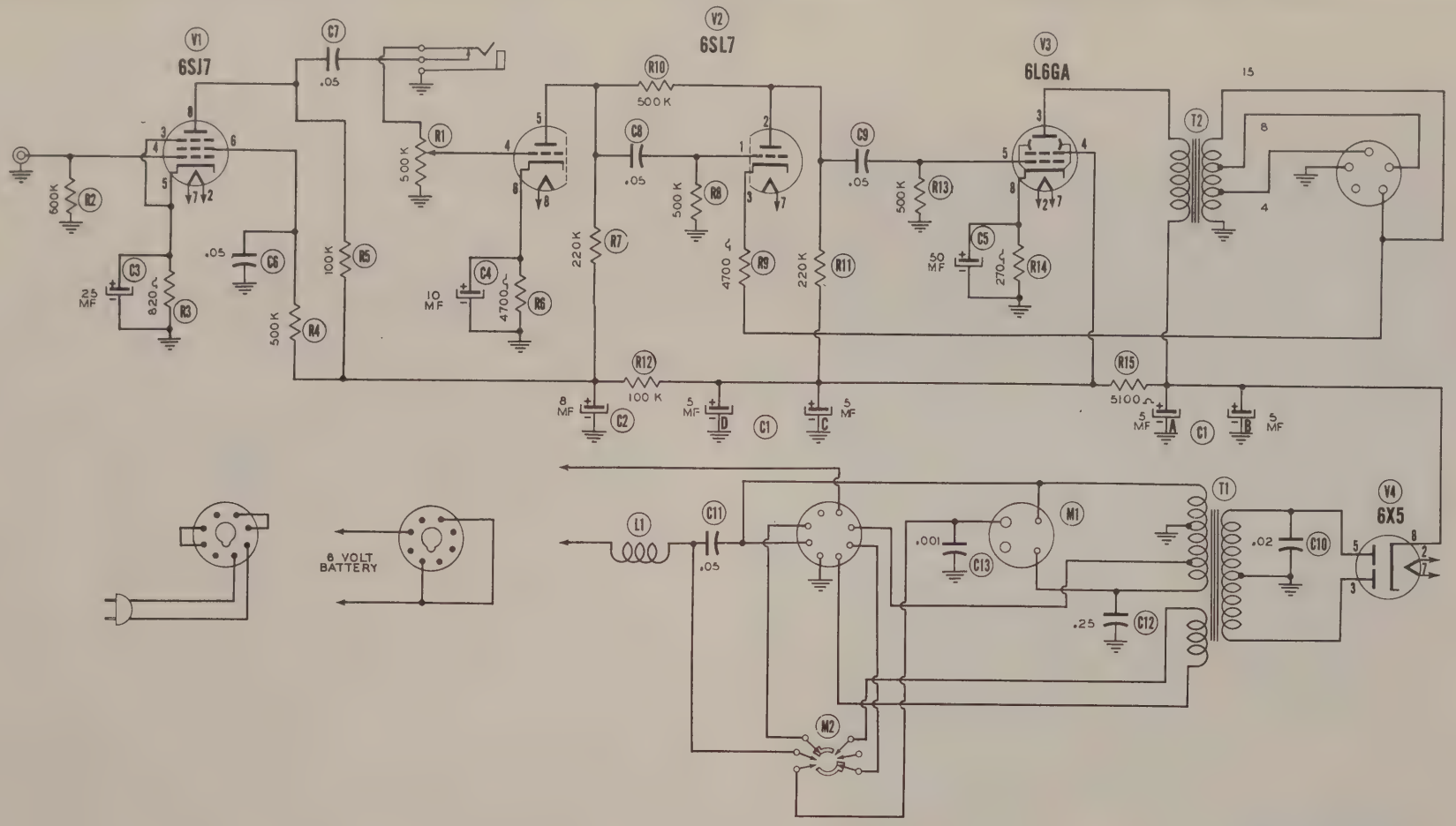
MISCELLANEOUS

ITEM No.	PART NAME	DAVID BOGEN PART No.	NOTES
M2	Switch		Stand By/On-Off

CHASSIS—BOTTOM VIEW



DAVID BOGEN MODEL E66



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	0V.	#	.9VDC	-.1VDC	.9VDC	25VDC	#	45VDC
V 2	6SL7GT	-.5VDC	87VDC	0V.	0V.	80VDC	1.2VDC	#	#
V 3	6L6GA	0V.	#	300VDC	280VDC	0V.	0V.	#	19VDC
V 4	6X5GT	0V.	#	280VAC	0V.	280VAC	0V.	#	310VDC

6.3VAC MEASURED ACROSS FILAMENTS.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SJ7	0Ω	38Ω	820Ω	500KΩ	820Ω	†600Ω	38Ω	†200KΩ
V 2	6SL7GT	500KΩ	†220KΩ	4.7KΩ	500KΩ	†320KΩ	4.7KΩ	38Ω	38Ω
V 3	6L6GA	0Ω	38Ω	†130Ω	†5KΩ	500KΩ	Inf.	38Ω	270Ω
V 4	6X5GT	Inf.	38Ω	250Ω	Inf.	240Ω	Inf.	38Ω	80KΩ

† MEASURED FROM PIN 8 OF V4.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt: AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possibe a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

PHOTOFACT* Folder

DELCO MODEL

TV-160

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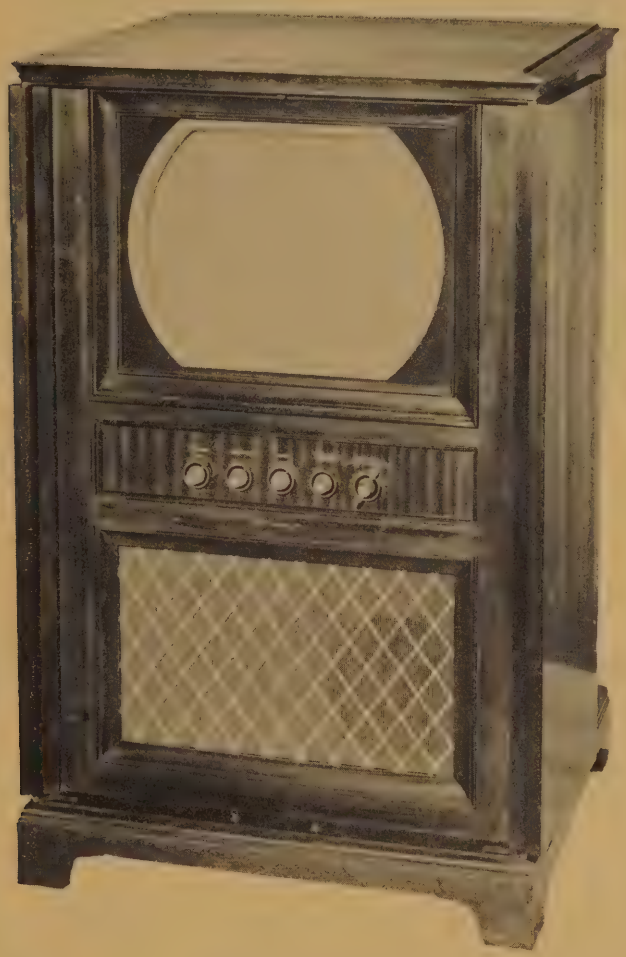
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



DELCO MODEL

TV-160

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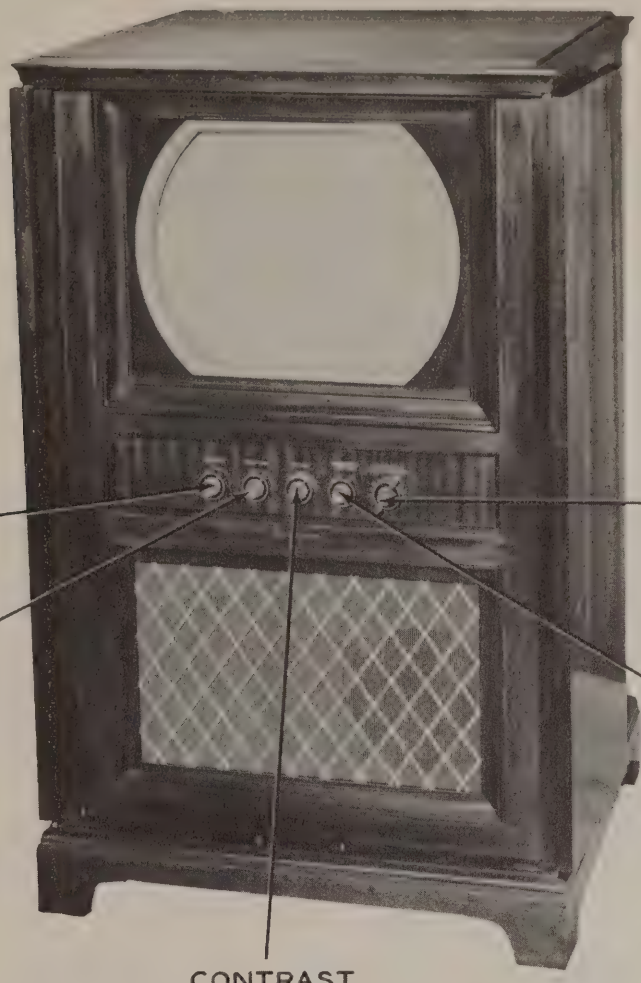
Date 2/50 Set No. 85—Folder No. 5

DELCO MODEL TV-160



DELCO MODEL TV-160

TRADE NAME	Delco Model TV-160
SUPPLIER	United Motors Service, Div., of GMC, General Motors Bldg., Detroit (2), Michigan
TYPE SET	Television Receiver
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC — RATING: 2.06 Amp. at 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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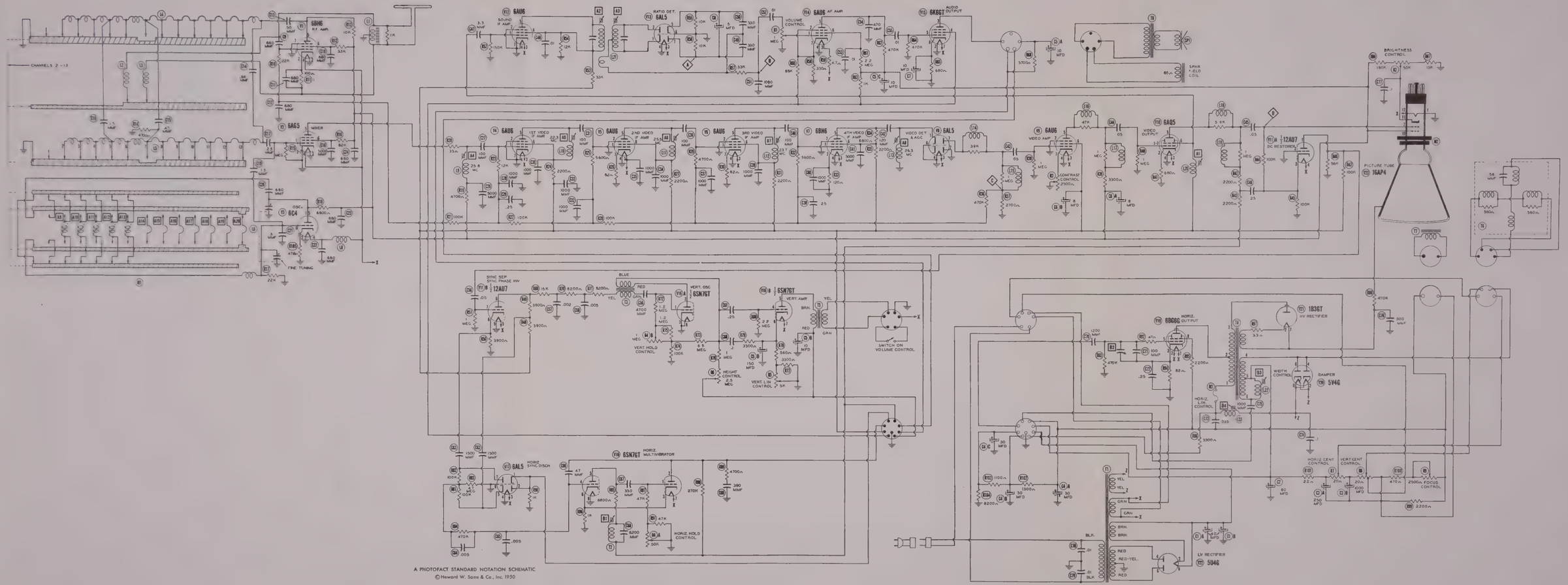

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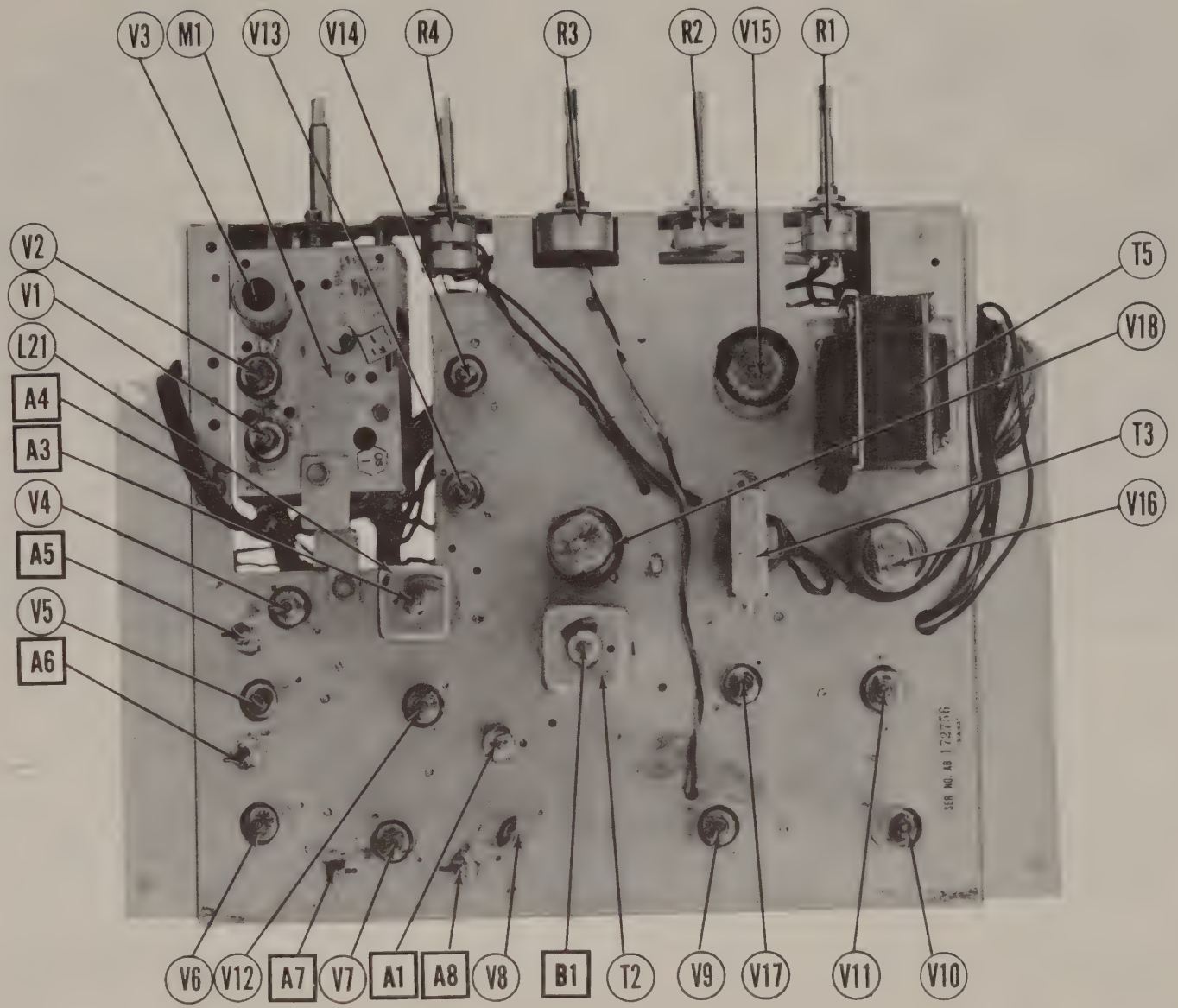
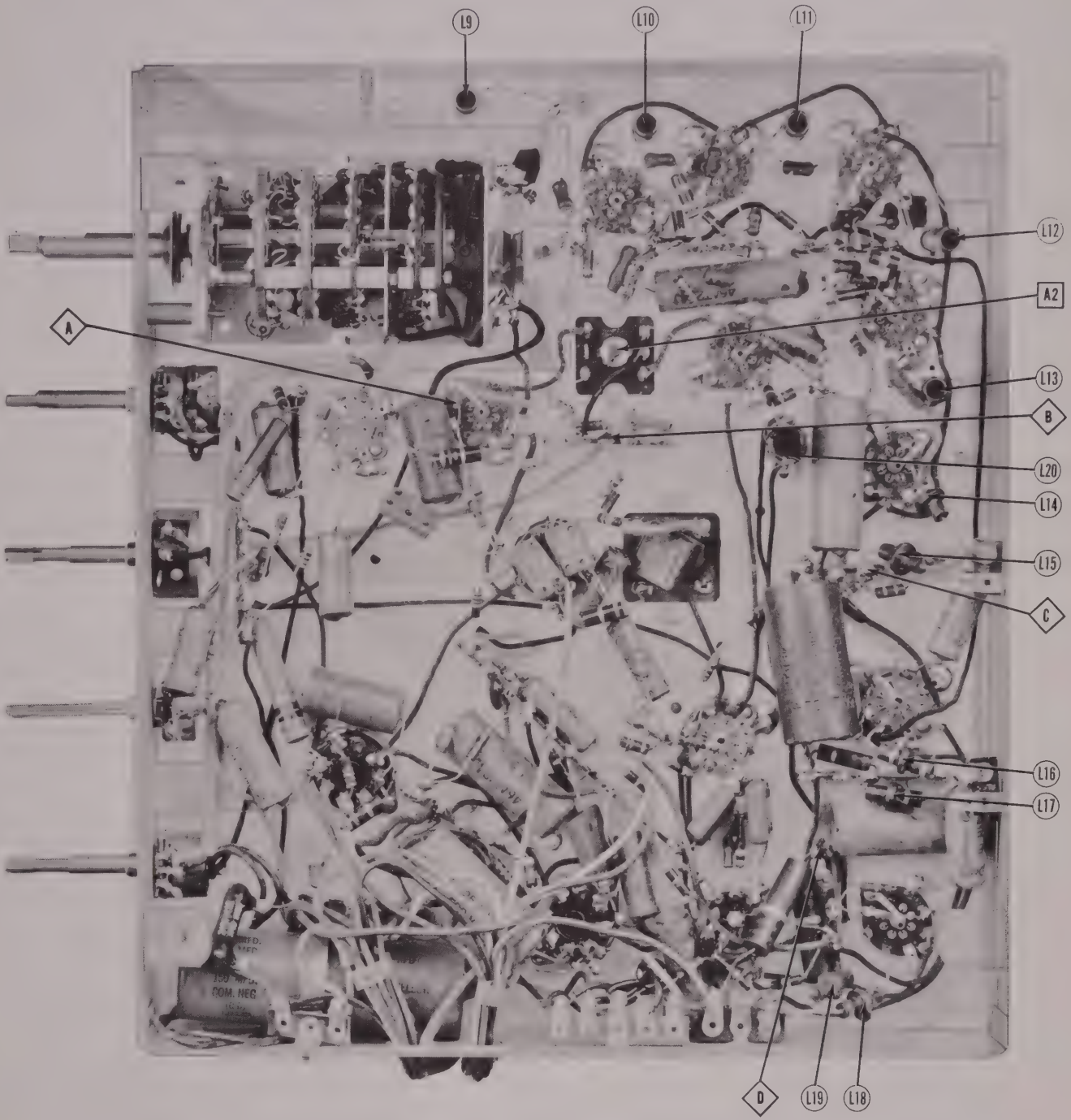
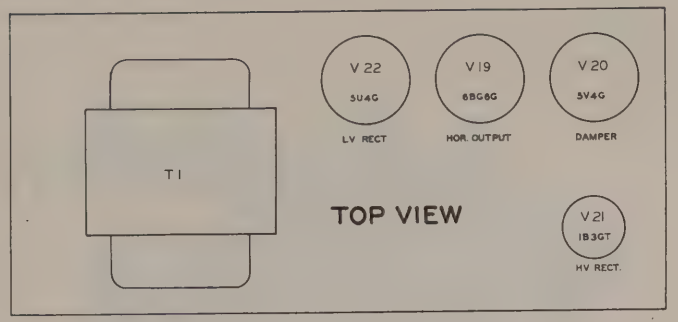
DELCO
MODEL TV-160

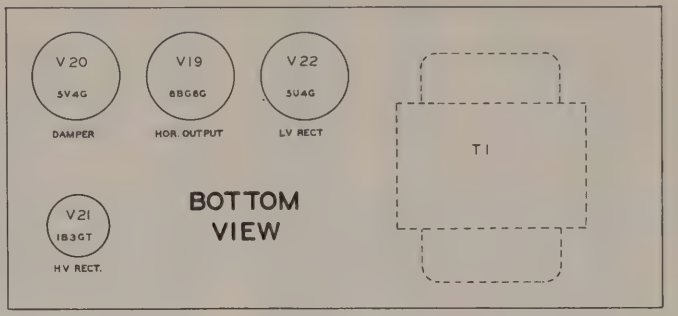


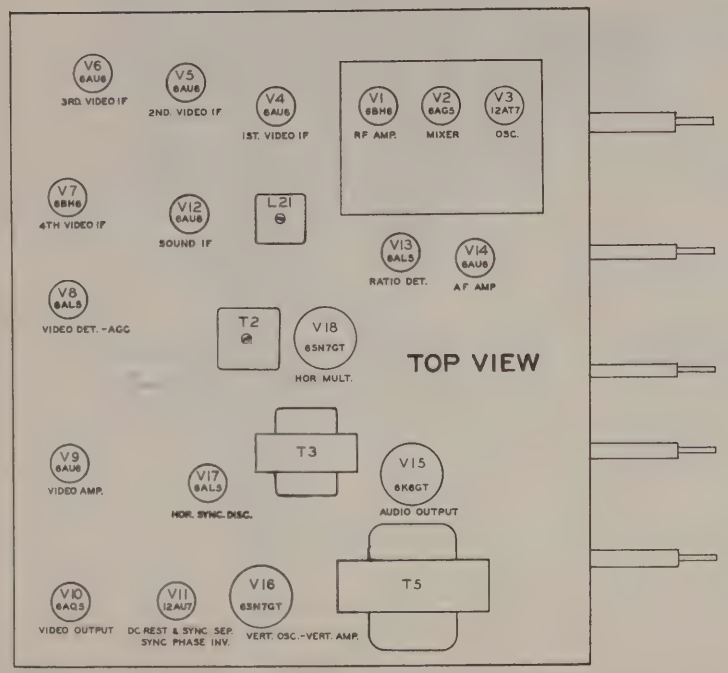
CHASSIS TOP VIEW

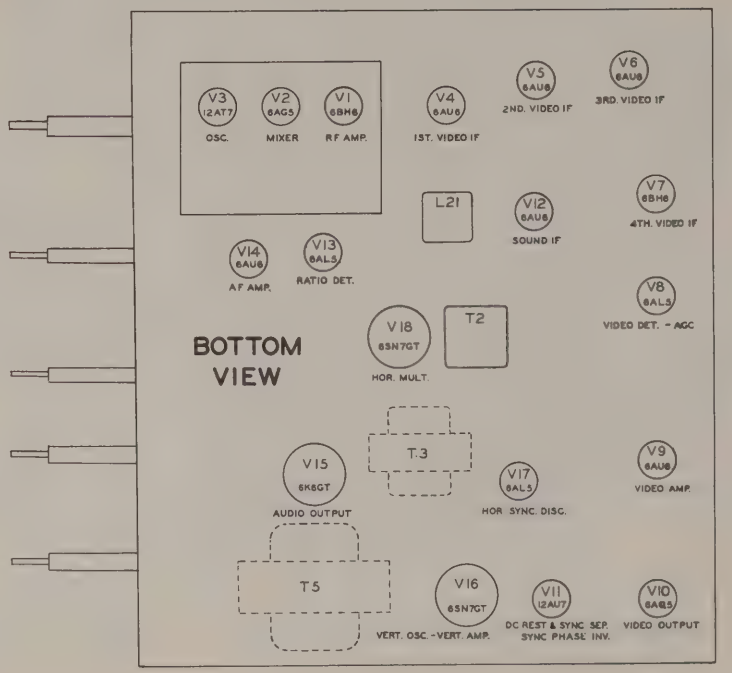


CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION









TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

SOUND ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	5000MMF	High side to pin 1 (Grid) 6AU6 (V9). Low side to chassis.	4.5MC (Unmod.)	Any	DC Probe to pin 7 6AL5 (V13), point (A) Common lead to chassis.	A1, A2,	Adjust for maximum deflection. Attenuate signal generator to give approximately 1 volt reading on VTVM.
2.	5000MMF	"	"	"	DC Probe to Point (B) Common to chassis.	A3	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

Shift the frequency of the signal generator either side of 4.5MC and slightly readjust A2 for approximately equal peaks. For best results, use only enough signal generator output to give one volt peaks. Retouch A3 for null point.

IF AMPLIFIER ALIGNMENT

Remove oscillator tube V3 (6C4) before aligning the IF coils to prevent any possible spurious beats which might give improper alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3.	Two 150Ω carbon res.	Insert resistor in each generator lead and connect across antenna terminals.	25.8MC 22.3MC 25.5MC 23.7MC 26.3MC	2 " " " "	DC Probe to Point (C) Common to chassis.	A4 A5 A6 A7 A8	Adjust the five IF Coils at their listed frequencies for maximum deflection keeping signal generator level at such a point to maintain approximately a two volt reading on VTVM.

Tune the signal generator from 21MC thru 26.25MC, attenuated to give a 1 1/2 volt reading on VTVM at the peaks. Plot IF response curve. Check readings at 21.75MC, 26.25MC and the dip between peaks. See figure 1 for correct response curve.

OVERALL IF RESPONSE CHECK USING SWEEP GENERATOR AND OSCILLOSCOPE

Connect synchronized sweep voltage from signal generator to horizontal amplifier in scope to obtain horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	5000MMF	High side to pin 1 (Grid) 6AG5 (V2). Low side to chassis.	24MC (10MC Sweep)	21.75MC 26.25MC	2	Vert. Amp. to Point (C) Low side to chassis.		If necessary, SLIGHTLY retouch A4, A5, A6, A7 and A8 to obtain pattern similar to Fig 1. Check to see that markers fall at proper points.

OSCILLATOR ALIGNMENT

The RF and Mixer lines of the tuner are very stable and pre-set at the factory, and normally do not required adjustment in the field. They may be touched up, however, by compressing or expanding the coils as required to bring up the overall gain.

The local oscillator operated 24.5MC above the center frequency of each TV Channel. To set the local oscillator, a separate "BFO" generator set at 24.5MC is used to obtain a zero beat with this difference frequency. Couple the "BFO" generator to the receiver by means of a few turns of hookup wire coiled around the 6AL5 video detector tube (V8). Connect a .01MFD capacitor between point D on the schematic and pin 1 of the 6AU6 audio amplifier tube (V14). Turn the fine tuning control to the midpoint of its range and set the channel selector switch to the channel which is to be aligned. (The oscillator circuits of each channel are independent of each other and therefore only those channels requiring alignment need be adjusted.)

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BFO GENERATOR FREQUENCY	CHANNEL		ADJUST	REMARKS
5.	Two 150Ω carbon res.	Insert resistor in each lead of signal generator and connect across the antenna input.	57MC 63MC 69MC 79MC 85MC 177MC 183MC 189MC 195MC 201MC 207MC 213MC	24.5MC " " " " " " " " " " "	2 3 4 5 6 7 8 9 10 11 12 13		A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20	Adjust slugs or shift the coil turns for rough audio beat in the speaker.

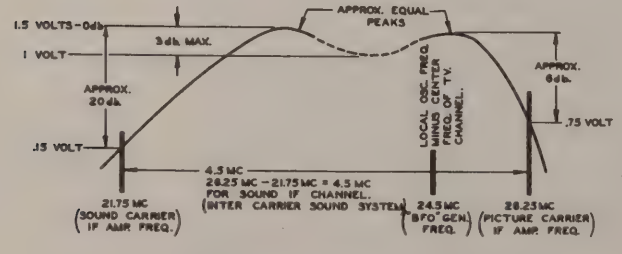
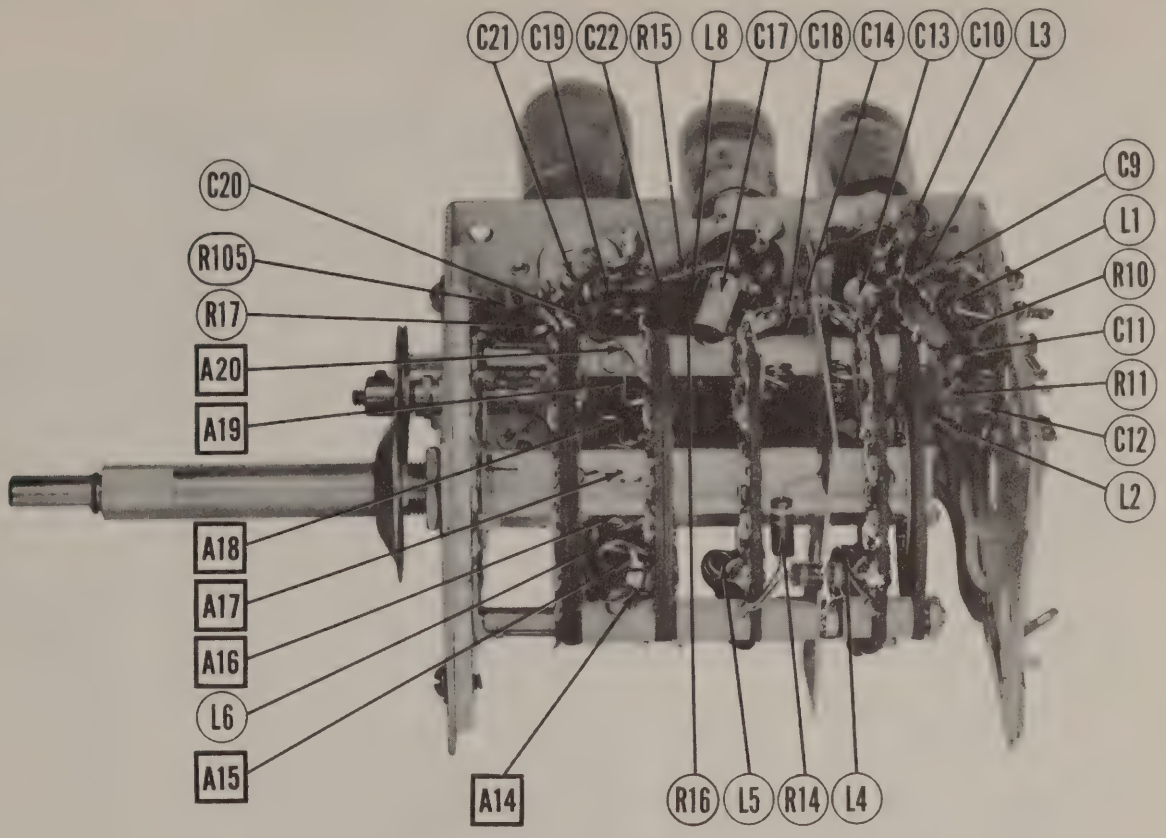
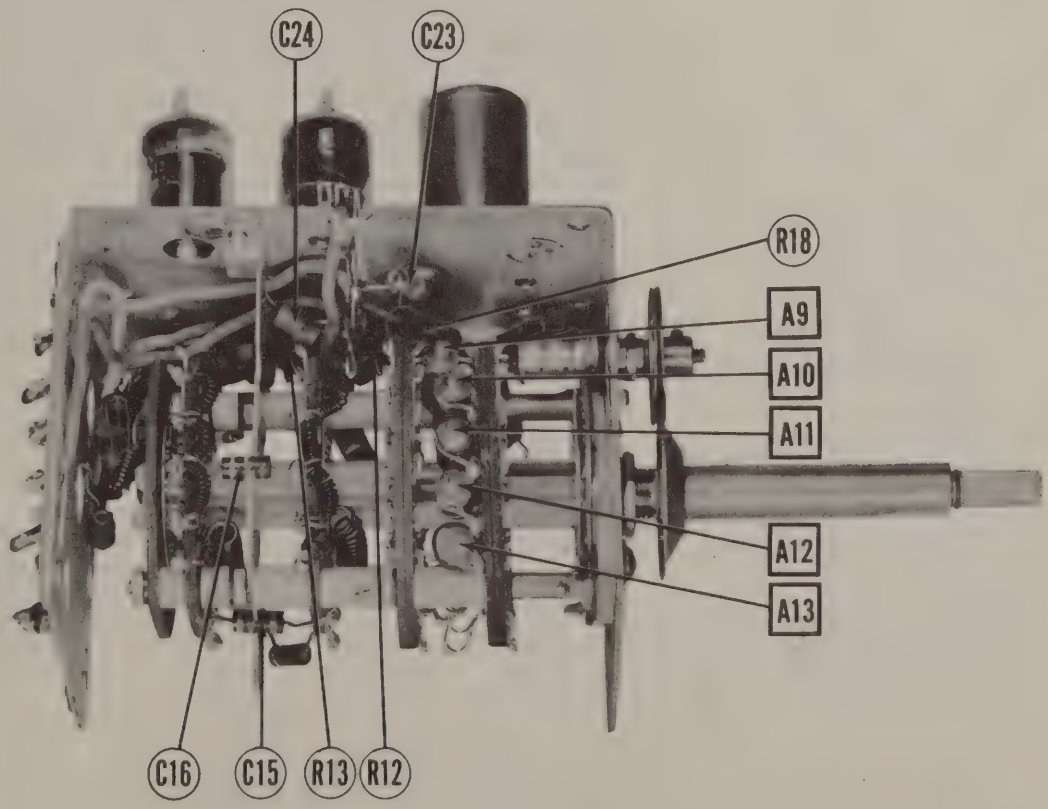

1.5 VOLTS-0db
1 VOLT
.35 VOLT
3db MAX.
APPROX. 20db
APPROX. EQUAL PEAKS
APPROX. 6db.
.75 VOLT
LOCAL OSC. FREQ. MINUS CENTER FREQ. OF T.V. CHANNEL.
4.5 MC
26.25 MC - 21.75 MC = 4.5 MC FOR SOUND IF CHANNEL. (INTER CARRIER SOUND SYSTEM)
21.75 MC (SOUND CARRIER IF AMP FREQ.)
24.5 MC BFO GEN. FREQ.
26.25 MC (PICTURE CARRIER IF AMP FREQ.)

FIG. 1



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BH6	-.5VDC	.5VDC	0V.	6.3VAC	165VDC	135VDC	0V.		
V 2	6AG5	-1.8VDC	0V.	0V.	6.3VAC	180VDC	105VDC	0V.		
V 3	6C4	165VDC	0V.	0V.	6.3VAC	165VDC	§-5.3VDC	3.7VDC		
V 4	6AU6	-1.1VDC	0V.	6.3VAC	0V.	125VDC	125VDC	0V.		
V 5	6AU6	-.6VDC	0V.	6.3VAC	0V.	132VDC	132VDC	.6VDC		
V 6	6AU6	-.5VDC	0V.	6.3VAC	0V.	130VDC	130VDC	.7VDC		
V 7	6BH6	0V.	0V.	6.3VAC	0V.	125VDC	130VDC	0V.		
V 8	6AL5	0V.	0V.	6.3VAC	0V.	0V.	0V.	-.2VDC		
V 9	6AU6	-1.2VDC	0V.	6.3VAC	0V.	165VDC	145VDC	.1VDC		
V 10	6AQ5	0V.	9VDC	6.3VAC	0V.	290VDC	145VDC	0V.		
V 11	12AU7	55VDC	0V.	5VDC	6.3VAC	6.3VAC	135VDC	0V.	7VDC	0V.
V 12	6AU6	-.5VDC	0V.	6.3VAC	0V.	55VDC	55VDC	0V.		
V 13	6AL5	-.1VDC	-.1VDC	6.3VAC	0V.	.3VDC	0V.	-.4VDC		
V 14	6AU6	0V.	1.2VDC	6.3VAC	0V.	100VDC	50VDC	1.2VDC		
V 15	6K6GT	0V.	0V.	320VDC	215VDC	0V.	0V.	6.3VAC	17VDC	
V 16	6SN7GT	-3VDC	75VDC 175VDC	0V.	0V.	440VDC	10VDC 17VDC	6.3VAC	0V	
V 17	6AL5	0V.	0V.	6.3VAC	0V.	6.5VDC	0V.	-11VDC		
V 18	6SN7GT	-3.2VDC	100VDC	8.2VDC	-.7VDC	300VDC	8.2VDC	6.3VAC	0V.	
V 19	6BG6G	0V.	0V.	11VDC	0V.	-2.6VDC	0V.	6.3VAC	335VDC	TOP CAP *
V 20	5V4G	0V.	500VDC	0V.	400VDC	0V.	400VDC	0V.	500VDC	
V 21	1B3GT	* DO NOT MEASURE								
V 22	5U4G	0V.	420VDC	0V.	390VAC	0V.	390VAC	400VDC	420VDC	
V 23	16AP4	0V.	3.2VDC	PIN 10 195VDC	PIN 11 10.5VDC	PIN 12 6.3VAC				

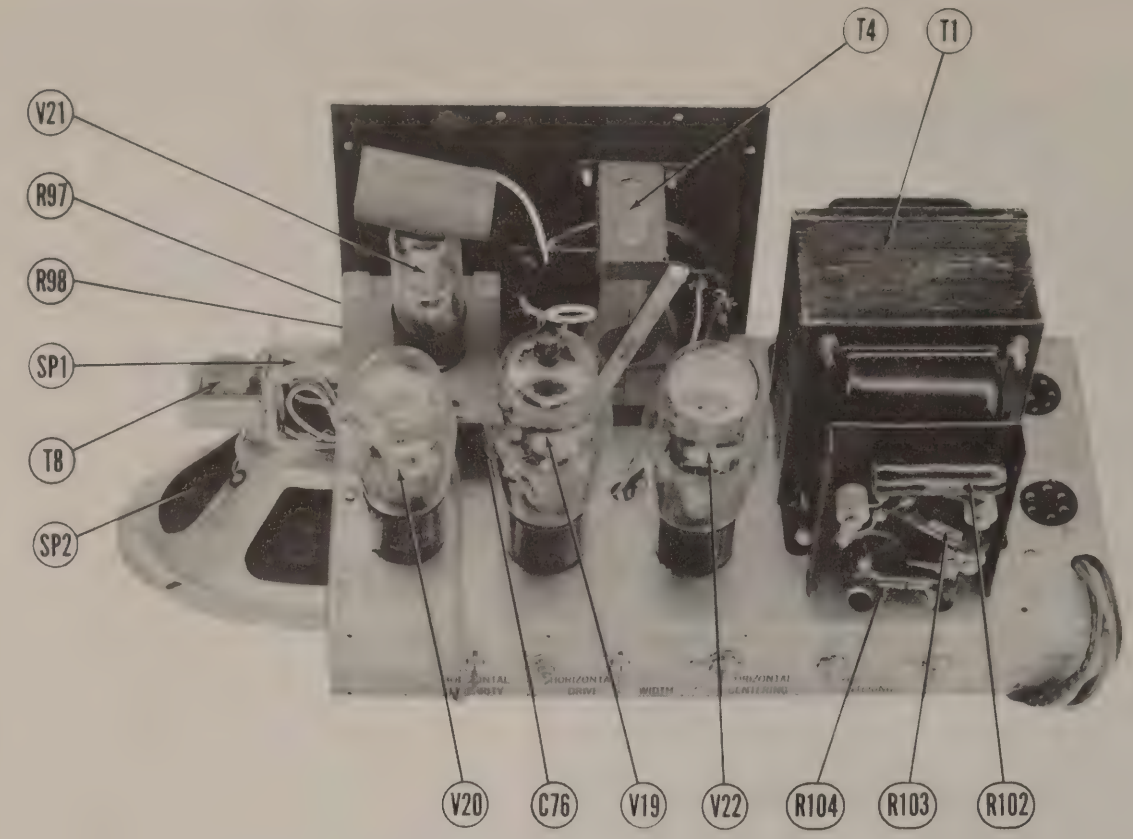
§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

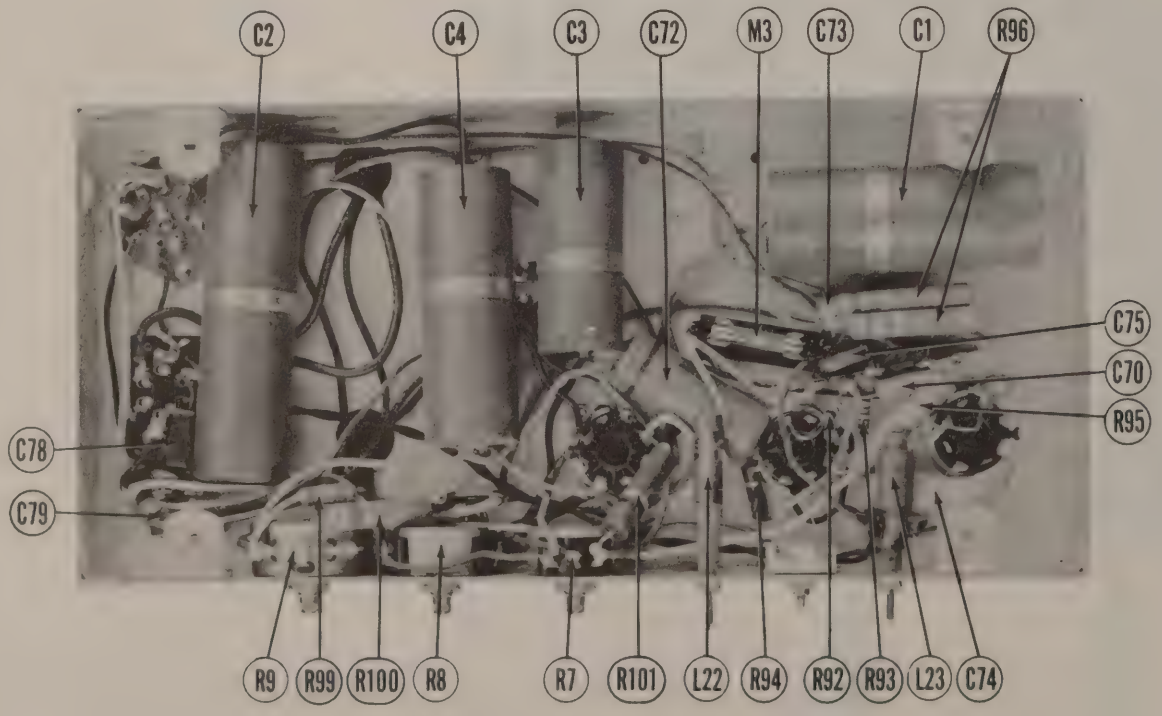
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BH6	800KΩ	100Ω	0Ω	.1Ω	†13KΩ	†40KΩ	0Ω		
V 2	6AG5	1 Meg.	0Ω	0Ω	.1Ω	†8KΩ	†90KΩ	0Ω		
V 3	6C4	†10KΩ	Inf.	0Ω	.1Ω	†10KΩ	22KΩ	470Ω		
V 4	6AU6	700KΩ	0Ω	.1Ω	0Ω	†4.7KΩ	†4.7KΩ	0Ω		
V 5	6AU6	600KΩ	0Ω	.1Ω	0Ω	†4.7KΩ	†4.7KΩ	82Ω		
V 6	6AU6	500KΩ	0Ω	.1Ω	0Ω	†4.7KΩ	†4.7KΩ	82Ω		
V 7	6BH6	470KΩ	0Ω	.1Ω	0Ω	†11KΩ	†4.7KΩ	120Ω		
V 8	6AL5	.1Ω	0Ω	.1Ω	0Ω	Inf.	0Ω	2.7KΩ		
V 9	6AU6	1 Meg.	0Ω	.1Ω	0Ω	†6KΩ	†2.5KΩ	9Ω		
V 10	6AQ5	1 Meg.	680Ω	.1Ω	0Ω	†5KΩ	†2.5KΩ	1 Meg.		
V 11	12AU7	†45KΩ	0Ω	100KΩ	.1Ω	.1Ω	†10KΩ	1 Meg.	4KΩ	0Ω
V 12	6AU6	150KΩ	0Ω	.1Ω	0Ω	†15KΩ	†15KΩ	0Ω		
V 13	6AL5	Inf.	Inf.	.1Ω	0Ω	10KΩ	0Ω	10KΩ		
V 14	6AU6	1 Meg.	330Ω	.1Ω	0Ω	†470KΩ	†2.2Meg.	330Ω		
V 15	6K6GT	0Ω	0Ω	†4.7KΩ	†1.5KΩ	470KΩ	Inf.	.1Ω	680Ω	
V 16	6SN7GT	2 Meg.	# 2.5 Meg. # 1 Meg.	0Ω	2.2 Meg.	# 4.5KΩ	2.5KΩ 560Ω	.1Ω	0Ω	
V 17	6AL5	1000Ω	1000Ω	.1Ω	0Ω	4.8 Meg.	0Ω	4.8 Meg.		
V 18	6SN7GT	47KΩ	†220KΩ	1000Ω	5 Meg.	†7.7KΩ	1000Ω	.1Ω	0Ω	
V 19	6BG6G	Inf.	0Ω	82Ω	Inf.	470KΩ	Inf.	.1Ω	†2.5KΩ	TOP CAP #190Ω
V 20	5V4G	Inf.	700KΩ	Inf.	†80Ω	Inf.	†80Ω	Inf.	700KΩ	
V 21	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #480Ω
V 22	5U4G	Inf.	10KΩ	Inf.	22Ω	Inf.	19Ω	†65Ω	10KΩ	
V 23	16AP4	0Ω	200KΩ	PIN 10 †2.5KΩ	PIN 11 13KΩ	PIN 12 .1Ω				

MEASURED FROM PIN 8 OF V20.
† MEASURED FROM PIN 8 OF V22.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

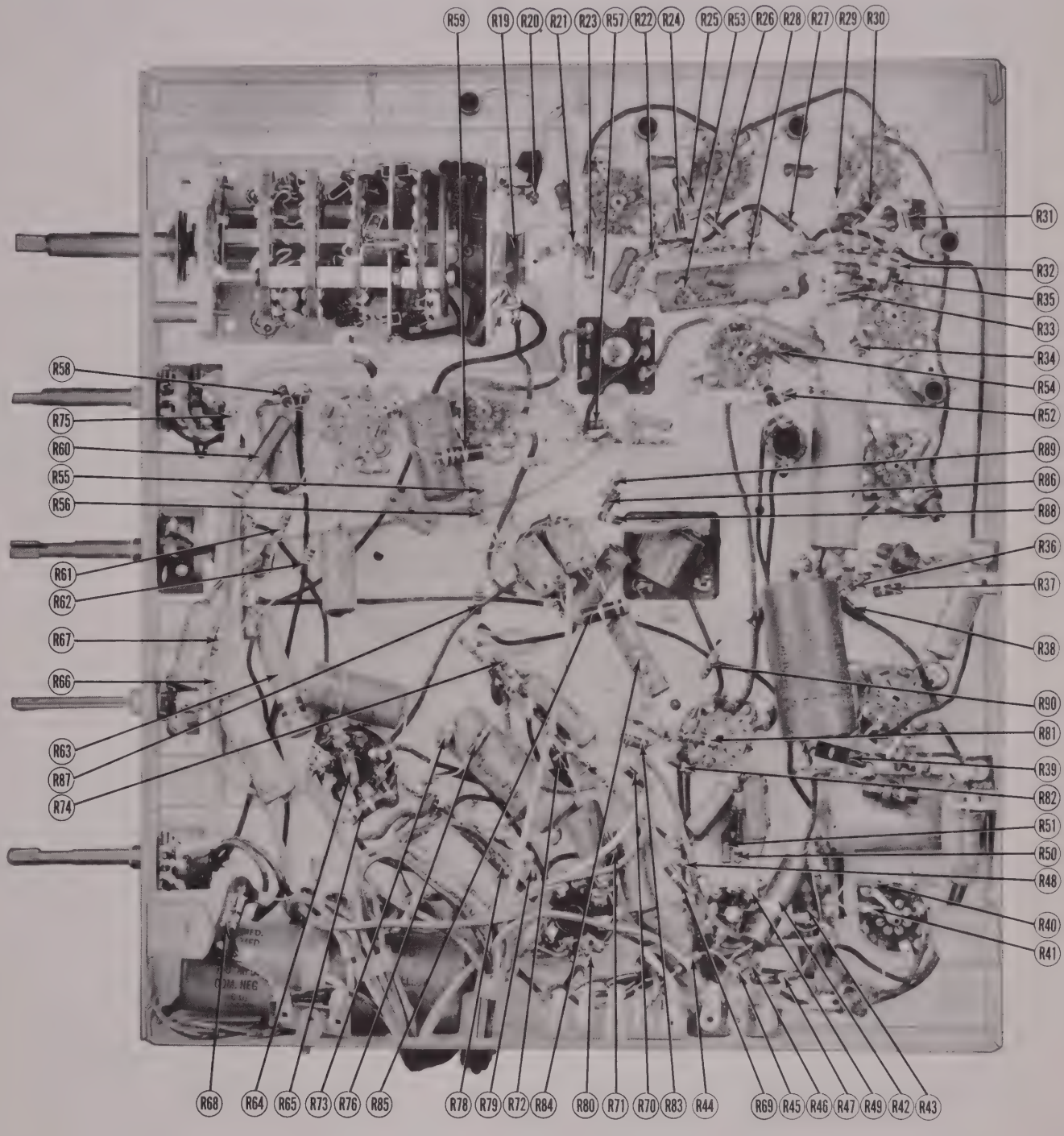


HIGH VOLTAGE SUPPLY - TOP VIEW

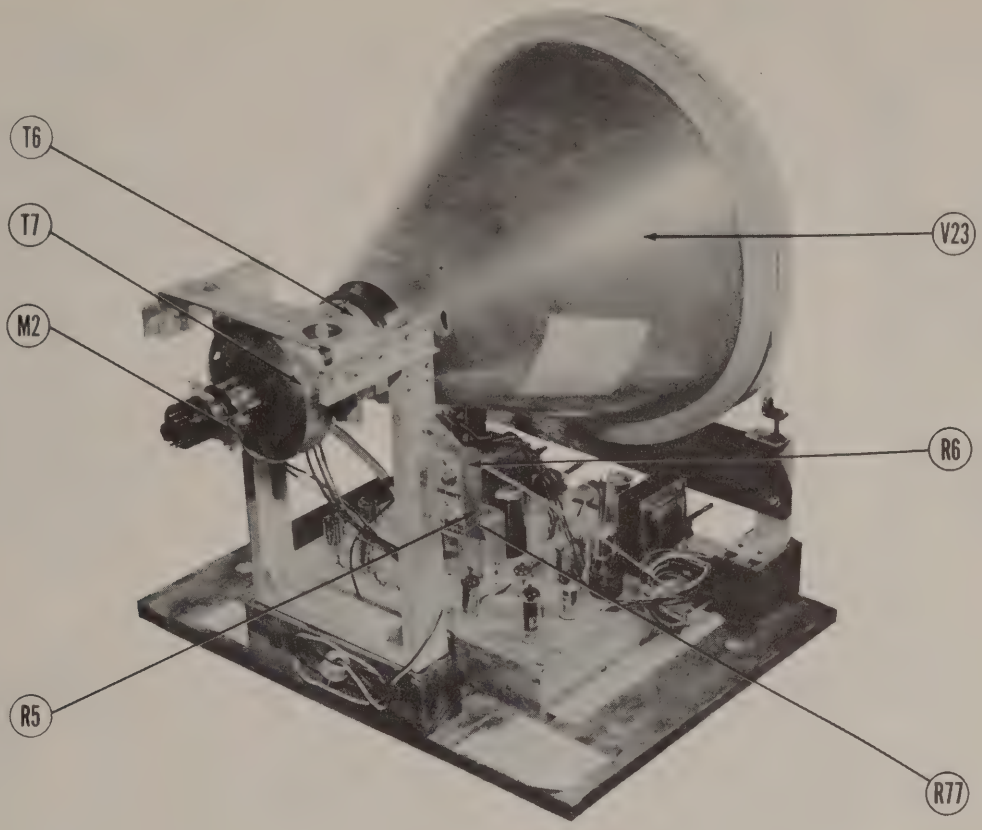


HIGH VOLTAGE SUPPLY - BOTTOM VIEW

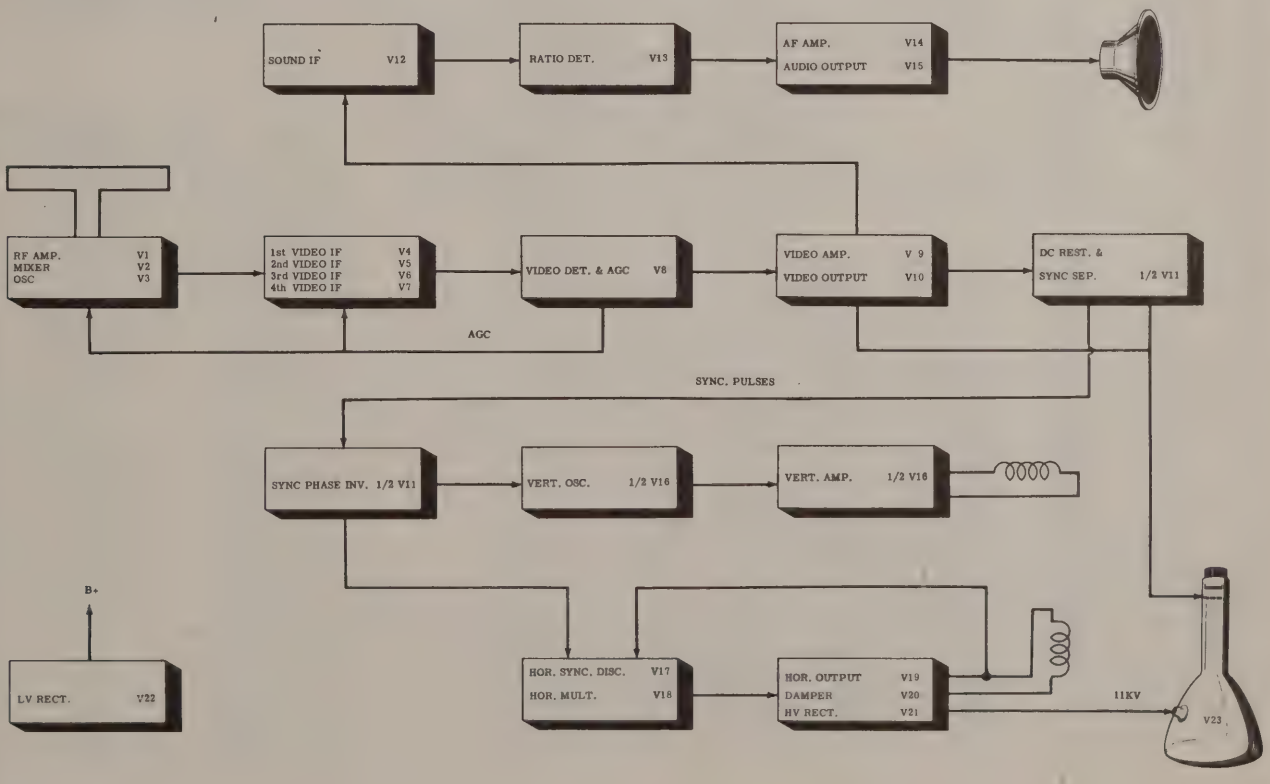
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS-TOP VIEW



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DELCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	5270	6BH6	7CM	
V2	Mixer	[illegible]	6AG5	7BD	
V3A	Oscillator	5265	6C4	6BG	
B	Oscillator	5371	12AT7	9A	
V4	1st Video IF	5260	6AU6	7BK	
V5	2nd Video IF	5260	6AU6	7BK	
V6	3rd Video IF	5260	6AU6	7BK	
V7	4th Video IF	5270	6BH6	7CM	
V8	Video Det. & AGC	5251	6AL5	6BT	
V9	Video Amp.	5260	6AU6	7BK	
V10A	Video Output	5268	6AQ5	7BZ	
B	Video Output	5241	6V6GT	7AC	
V11A	DC Restorer-Sync. Sep.-Phase Inv.	[illegible]	12AU7	9A	
B	DC Restorer-Sync. Sep.-Phase Inv.	5258	6SN7GT	8BD	
V12	Sound IF Amp.	5260	6AU6	7BK	
V13	Ratio Det.	5251	6AL5	6BT	
V14	AF Amp.	5260	6AU6	7BK	
V15	Audio Output	5196	6K6GT	7S	
V16	Vert. Osc.-Vert. Amp.	5258	6SN7GT	8BD	
V17	Hor. Sync. Disc.	5251	6AL5	6BT	
V18	Hor. Multivibrator	5258	6SN7GT	8BD	
V19	Hor. Output	5269	6BG6G	5BT	
V20	Damper	5118	5V4G	5L	
V21	HV Rectifier	5056	1B3GT	3C	
V22	LV Rectifier	5117	5U4G	5T	
V23	Picture Tube	1219430	16AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	1219212	PRSA450/40-40	EDJ10118		TVL-644	Filter
B	40	450						Filter
C2	80	450	1219211	PRSA450/40+40*	EZJ0074		TVL-9 §	Filter
C3A	250	10	1219209	PRS12/250	EZ10095		TVL-665	Hor. Cent. Cont. Byp. Red
B	1000	6		PRS6/1000				Vert. Cent. Cont. Bypass Yel.
C4A	30	450	1219420	PRS450/30-30	UPCJ3905		TVL-555	Filter Red
B	30	350		PRS250/40				Filter Yellow
C	30	250						Filter Blue
C5A	10	450	1219210	AF232J	EZ10090		DI3422	Output Plate Dec. Red
B	10	450		PRS50/100				Vert. Output Dec. Red
C	10	450						Decoupling Blue
D	150	50						Vert. Output Cath. Byp. Yel.
C6A	8	300	1219214	PRS450/8-8	BRD1145		TVA-25	Decoupling
B	8	300						Filter
C7	10	25	J100	PRS25/10	BR102A		TVA-5	Output Cathode Bypass
C8	5	50	J051	PRS150/4	BR550		TVA-13	Stabilizing Cap.
C9	680		1219351			GP2K-680		RF Coupling
C10	680		1219351			GP2K-680		RF Screen Bypass
C11	680		1219351			GP2K-680		RF Cath. Bypass
C12	680		1219351			GP2K-680		AGC Filter
C13	50		1218505			GP1K-50		RF Coupling
C14	.68		1218895					RF Coupling
C15	.47		1218895					RF Coupling
C16	1.5		1218897			NPOK-1.5		RF Coupling
C17	25		1219352			GP1K-25		RF Coupling
C18	5000		1219295			811-005	29C1	Mixer Screen Bypass
C19	1.5		1218897			NPOK-1.5		Osc. Coupling
C20	680		1219351			GP2K-680		Osc. Feedback
C21	3		1218409			NPOK-3		Osc. Feedback
C22	680		1219351			GP2K-680		Filament Bypass
C23	680		1219351			GP2K-680		RF Bypass
C24	680		1219351			GP2K-680		RF Bypass
C25	22		1219336			GP1K-22		Osc. Grid Cap. *
C26	5000		1219295	1467-005	1D5D5	811-005	29C1	Mixer Plate Decoupling
C27	100		1218949	1468-0001	5W5T1	GP1K-100	1FM-31	IF Coupling
C28	1000		1219297	1468-001	1W5D1	GP2L-001	1FM-21	AGC Filter
C29	.25	200	E254	P488-25	GT2P25		TC-2	AGC Filter
C30	1000		1219297	1468-001	1W5D1	GP2L-001	1FM-21	1st V. IF Decoupling
C31	100		1218949	1468-0001	5W5T1	GP1K-100	1FM-31	IF Coupling
C32	1000		1219297	1468-001	1W5D1	GP2L-001	1FM-21	AGC Filter
C33	1000		1219297	1468-0001	1W5D1	GP2L-001	1FM-21	RF Bypass
C34	1000		1219297	1468-0001	1W5D1	GP2L-001	1FM-21	2nd V. IF Decoupling
C35	1000		1219297	1468-0001	1W5D1	GP2L-001	1FM-21	2nd V. IF Fil. Bypass
C36	100		1218949	1468-001	5W5T1	GP1K-100	1FM-31	IF Coupling
C37	1000		1219297	1468-0001	1W5D1	GP2L-001	1FM-21	AGC Filter
C38	.25	200	E254	P488-25	GT2P25		TC-2	AGC Filter
C39	1000		1219297	1468-001	1W5D1	GP2L-001	1FM-21	3rd V. IF Decoupling
C40	100		1218949	1468-0001	5W5T1	GP1K-100	1FM-31	IF Coupling
C41	5000		1219295	1467-005	1D5D5	811-005	29C1	4th V. IF Decoupling
C42	120	500	1218949	1468-0001	5W5T1	GP2K-120	1FM-31	IF Coupling
C43	.05	200	E503	P288-05	GT2S5		TM-15	Video Coupling
C44	.05	600	E503	P688-05	GT6S5		TM-15	Video Coupling
C45	.05	600	E503	P688-05	GT6S5		TM-15	Video Coupling
C46	.25	600	E254	P688-25	GT6P25		TC-2	Video Coupling
C47	3.3		1218409			NPOK-3.3		S. IF Coupling
C48	.01	200	E103	P488-01	GT2S1	GP2-335-01	TM-11	S. IF Decoupling
C49	330		1218950	1468-0003	5W5T3	GP2K-330	1FM-335	Diode Load Cap. †
C50	330		1218950	1468-0003	5W5T3	GP2K-330	1FM-335	Diode Load Cap. †
C51	1000		1219297	1468-001	1W5D1	GP2L-001	1FM-21	De-emphasis
C52	.01	600	E103	P688-01	GT6S1	GP2-335-01	TM-11	Audio Coupling
C53	.01	600	E103	P688-01	GT6S1	GP2-335-01	TM-11	AF Screen Bypass
C54	470	500	C471	1468-0005	5W5T5	GP2K-470	1FM-35	AF Plate Bypass
C55	.01	600	E103	P688-01	GT6S1	GP2-335-01	TM-11	Audio Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C56	.05	600	E503	P688-05	GT6S5		TM-15	Sync. Coupling
C57	.002	600	E202	P688-002	GT6D2	GP2M-002	TM-22	Integrator Net.
C58	.005	600	E502	P688-005	GT6D5	GP2M-005	TM-25	Integrator Net.
C59	4700	500	G472	1467-005	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C60	.1	600	E104	P688-1	GT6P1		TM-1	Vert. Discharge
C61	.25	600	E254	P688-25	GT6P25		TC-2	Vert. Sweep Coupling
C62	1500	500	G152	1467-0015	1W5D15	GP2L-0015	1FM-215	Hor. Sync. Coupling
C63	1500	500	G152	1467-0015	1W5D15	GP2L-0015	1FM-215	Hor. Sync. Coupling
C64	.005	600	E502	P688-005	GT6D5	GP2M-005	TM-25	AFC Filter
C65	.005	600	E502	P688-005	GT6D5	GP2M-005	TM-25	AFC Filter
C66	47	500	G470	1468-00005	5W5Q5	GP1K-47	1FM-45	Hor. MV Feedback
C67	330	500	G331	1468-00035	5W5T35	GP2K-330	1FM-335	Hor. MV Feedback
C68	6200	500	1219659					Fixed Trimmer
C69	390		G391	1468-0004	5W5T4	GP2K-390	1FM-34	Hor. Discharge
C70	1200	500	G152	1467-0015	1W5D15	GP2L-0012	1FM-215	Hor. Sweep Coupling
C71	100	500	G101	1468-0001	5W5T1	GP1K-100	1FM-31	Voltage Divider †
C72	.25	600	G254	P688-25	GT6P25		TC-2	Hor. Output Cath. Bypass
C73	.035	600	E353	P688-033				Damper Filter
C74	.1	600	E104	P688-1	GT6P1		TM-1	Damper Filter
C75	1000	500	G102	1468-001	1W5D1	GP2L-001	1FM-21	Hor. Feedback
C76	500	10000	1219208					HV Filter
C77	.1	200	E104	P288-1	GT2P1		TM-1	Pic. Tube Cath. Decoupling
C78	.01	600	1219217	P688-01	GT6S1	GP2-335-01	TM-11	Line Filter
C79	.01	600	1219217	P688-01	GT6S1	GP2-335-01	TM-11	Line Filter
C80	1000		1219297	1468-001	1W5D1	GP2L-001	1FM-21	4th V. IF Cathode Bypass †

* Use only with sets using type 12AT7 Osc. Tube.
† When either item C49 or C50 are replaced, replace both with capacitors of equal value.
† Not used in all models.
§ Use mounting strap.
♦ Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DELCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	1219244	Q13-137	AM-63-Z	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
C	Switch		Not Req.	78-1	SW-A	Attach to R1A per instructions
R2A	50KΩ	½	1219243	Q11-123	AM-44-S	Brightness control
B	Shaft‡		Not Req.	Not Req.	KSS-3	Attach to R2A per instructions
R3	2500Ω	2	1219242			Contrast control, Wire Wound
R4A	50KΩ	½		B11-123 *		Horiz. hold control, front
B	1 Meg.	½	1219250	B11-137 *		Vert. hold control, rear
C	Shaft End			E202 *		Attach per instructions in "Concentrikit"
R5A	5,000Ω	½	1219249	Q11-114	AM-19-S	Vert. linearity control
B	Shaft		Not Req.	SQ	KSS-3 #	Attach to R5A per instructions
R6A	2.5 Meg.	½	1219248	Q11-239	AM-84-S	Height control
B	Shaft		Not Req.	SQ	KSS-3 #	Attach to R6A per instructions
R7	20Ω	2	1219246	W-20	43-20	Horiz. centering control, Wire wound
R8	20Ω	2	1219245	W-20X10	43-20CT	Vert. centering control, Wire wound, tapped at 10Ω
R9	2500Ω	4	1219247		10-2500	Focus control, Wire wound

File slot in shaft to duplicate original.
* Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DELCO PART No.	IRC PART No.	IDENTIFICATION CODES
R1u	22KΩ 20%	½	A223		RF Grid
R11	100Ω 20%	½	A101		RF Cathode
R12	33KΩ 20%	½	A333		RF Screen
R13	10KΩ 20%	1	B103		RF Plate
R14	4700Ω 20%	½	A472		Mixer Coil Shunt
R15	1 Meg. 20%	½	A105		Mixer Grid
R16	82KΩ 20%	½	A823		Mixer Screen
R17	22KΩ 20%	½	A223		Osc. Grid See Note 7
R18	6800Ω 20%	1	B682		Osc. Plate
R19	4700Ω	½	A472	BTS-4700	Mixer Plate Decoupling
R20	33Ω	½	A330		Parasitic Supp.
R21	100KΩ	½	A104	BTS-100K	AGC Network
R22	100KΩ	½	A104	BTS-100K	AGC Network
R23	12KΩ	½	A123		1st Video IF Grid
R24	2200Ω	½	A222	BTS-2200	1st Video IF Decoupling
R25	5600Ω	½	A562		2nd Video IF Grid
R26	82Ω	½	A820		2nd Video IF Cathode
R27	2200Ω	½	A222	BTS-2200	2nd Video IF Decoupling
R28	100KΩ	½	A104	BTS-100K	AGC Network
R29	4700Ω	½	A472	BTS-4700	3rd Video IF Grid
R30	82Ω	½	A820		3rd Video IF Cathode
R31	2200Ω	½	A222	BTS-2200	3rd Video IF Decoupling
R32	5600Ω	½	A562		4th Video IF Grid
R33	120Ω 5%	½	A121		4th Video IF Cathode See Note 1
R34	8800Ω	½	A682		4th Video IF Plate
R35	2200Ω	½	A222	BTS-2200	4th Video IF Decoupling
R36	470KΩ	½	A474	BTS-470K	AGC Network
R37	2700Ω	½	A272	BTS-2700	Video Det. Diode Load
R38	1 Meg. 20%	½	A105	BTS-1 Meg.	Video Amp. Grid
R39	3300Ω	1	B332	BTA-3300	Video Amp. Plate
R40	1 Meg. 20%	½	A105	BTS-1 Meg.	Video Output Grid
R41	68Ω	½	A681	BTS-680	Video Output Cathode
R42	2200Ω	2	C222	BT-2-2200	Video Output Plate
R43	2200Ω	2	C222	BT-2-2200	Video Output Plate
R44	100KΩ	½	A104	BTS-100K	Picture Tube Grid
R45	100KΩ	½	A104	BTS-100K	DC Rest. Cathode
R46	56KΩ	½	A563	BTS-56K	Voltage Divider See Note 2

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DELCO PART No.	IRC PART No.	IDENTIFICATION CODES
R47	100KΩ	½	A104	BTS-100K	Sync. Sep. Plate See Note 3
R48	3900Ω	½	A392	BTS-3900	Sync. Phase Inv. Plate
R49	3900Ω	½	A392	BTS-3900	Sync. Phase Inv. Plate
R50	3900Ω	½	A392	BTS-3900	Sync. Phase Inv. Cathode
R51	1 Meg	½	A105	BTS-1 Meg.	Sync. Phase Inv. Grid
R52	150KΩ	½	A154		Sound IF Grid
R53	33KΩ	½	A333		Sound IF Decoupling
R54	12KΩ	½	A123	BTS-12K	Voltage Divider
R55	10KΩ 5%	½	A103	BTS-10K-5%	Ratio Det. Diode Load
R56	10KΩ 5%	½	A103	BTS-10K-5%	Ratio Det. Diode Load
R57	33KΩ	½	A333	BTS-33K	De-emphasis
R58	330Ω	½	A331	BW-½-330	AF Cathode
R59	4.7Ω	1	1219656	BW-1-4.7	AF Filament
R60	68KΩ 5%	1	B683	BTA-68K-5%	Voltage Divider
R61	2.2 Meg.	½	A225	BTS-2.2 Meg.	AF Screen
R62	470KΩ	½	A474	BTS-470K	AF Plate
R63	1000Ω	2	C102	BT-2-1000	AF Decoupling
R64	470KΩ	½	A474	BTS-470K	Output Grid
R65	680Ω	1	B681	BTA-680	Output Cathode
R66	180KΩ	½	A184	BTS-180K	Voltage Divider
R67	15KΩ	½	A153	BTS-15K	Voltage Divider
R68	3700Ω	5	1219429		Filter-Wire Wound
R69	15KΩ	½	A153	BTS-15K	Integrator
R70	8200Ω	½	A822	BTS-8200	Integrator
R71	8200Ω	½	A822	BTS-8200	Integrator
R72	1.2 Meg.	½	A125	BTS-1.2 Meg.	Vert. Osc. Grid
R73	6.8 Meg.	½	A685	BTS-6.8 Meg.	Voltage Divider
R74	100KΩ	½	A104	BTS-100K	Voltage Divider
R75	1.2 Meg.	½	A125	BTS-1.2 Meg.	Voltage Divider
R76	1 Meg. 20%	½	A105	BTS-1 Meg.	Vert. Osc. Plate See Note 6
R77	3300Ω	½	A332	BTS-3300	Voltage Divider
R78	560Ω	1	B561	BTA-560	Vert. Amp. Cathode
R79	3300Ω	½	A332	BTS-3300	Vert. Peaking
R80	2.2 Meg.	½	A225	BTS-2.2 Meg.	Vert. Amp. Grid
R81	100KΩ	½	A104	BTS-100K	Horiz. Sync. Disc. Load
R82	100KΩ	½	A104	BTS-100K	Horiz. Sync. Disc. Load
R83	4.7 Meg.	½	A475	BTS-4.7 Meg.	Horiz. Sync. Disc. Load
R84	470KΩ	½	A474	BTS-470K	Horiz. AFC Filter Network
R85	6800Ω	1	B682	BTA-6800	Horiz. Osc. Plate
R86	1000Ω	½	A102	BTS-1000	Horiz. Osc. Cathode
R87	47KΩ	½	A473	BTS-47K	Horiz. Osc. Grid See Note 4
R88	270KΩ	½	A274	BTS-270K	Horiz. Osc. Plate See Note 5
R89	4700Ω	½	A472	BTS-4700	Horiz. Peaking
R90	1000Ω	½	A102	BTS-1000	Feedback Network
R91	47KΩ	½	A473	BTS-47K	Voltage Divider See Note 1
R92	47Ω	½	A470		Parasitic Supp.
R93	470KΩ	½	A474	BTS-470K	Horiz. Output Grid
R94	82Ω	1	B820	BW-1-82	Horiz. Output Cathode
R95	2200Ω	2	C222	BT-2-2200	Horiz. Output Screen
R96	3300Ω	2	C332	BT-2-3300	Filter See Note 8
R97	3.3Ω	½	1214564		HV Filament
R98	470KΩ	1	B474		HV Filter
R99	2200Ω	1	B222	BTA-2200	Focus Coil Shunt
R100	470Ω	2	C471	BT-2-470	Series Focus Control
R101	22Ω	2	C220	BW-2-22	Filter Network
R102	1300Ω	20	1219658		Filter-Wire Wound
R103	1100Ω	20	1219215		Filter-Wire Wound
R104	8200Ω	10	1219216	AB-8000	Bleeder-Wire Wound
R105	470Ω	½	A471		Osc. Cathode See Note 9

Note 1. Not used in all models.
Note 2. Some models use 100KΩ resistor in this application.
Note 3. Some models use 1 Meg. resistor in this application.
Note 4. Some models use 68KΩ resistor in this application.
Note 5. Some models use 220KΩ resistor in this application.
Note 6. Some models use 1.5 Meg. resistor in this application.
Note 7. Models employing a 12AT7 Osc. tube, use 10KΩ resistor in this application.
Note 8. Some models use two resistors in parallel to obtain correct wattage and resistance.
Note 9. Not used in models employing a 12AT7 Osc. tube.

SPEAKER

ITEM No.	RATINGS: FIELD RES.	RATINGS: V. C. IMP.	REPLACEMENT DATA: DELCO PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	65Ω	3.6Ω	1219345		8E ①	①Supplied on order. Give field resistance and current.
	CONE DIA.	V. C. DIA.				
SP2	7 7/8"	3/4"				

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: DELCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC at 2.06A	790VCT .240ADC	5VAC at 3A	5VAC at 2A SEC. 4 6.3VAC at 8.1A	1219421	P-8153 ②		TP-410 ②

DELCO MODEL TV-160

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA DELCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	40Ω		1219263				Hor. Sweep Osc. Coil
T3	120Ω	1400Ω	1219264	A-8111	A-3000	TBO-1	Vert. Block Osc. Trans.
T4	410Ω Tap at 150Ω	SEC. 1 12.6Ω Tap at .6Ω	1219423	A-8117		TFB-4	Hor. Output Trans.
		SEC. 2 0Ω					
T5	590Ω	7Ω	1219267	A-8115	A-3035	TSO-1	Vert. Output Trans.
T6A	14Ω		1219260	DY-1			Hor. Deflection Coil
B	68Ω						Vert. Deflection Coil
T7	450Ω		1219425				Focus Coil

② Mount vertically with universal mounting brackets.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA DELCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T8	7.1KΩ	3.6Ω	460Ω	.4Ω	1219345	A-8114	A-2931	RO-13	

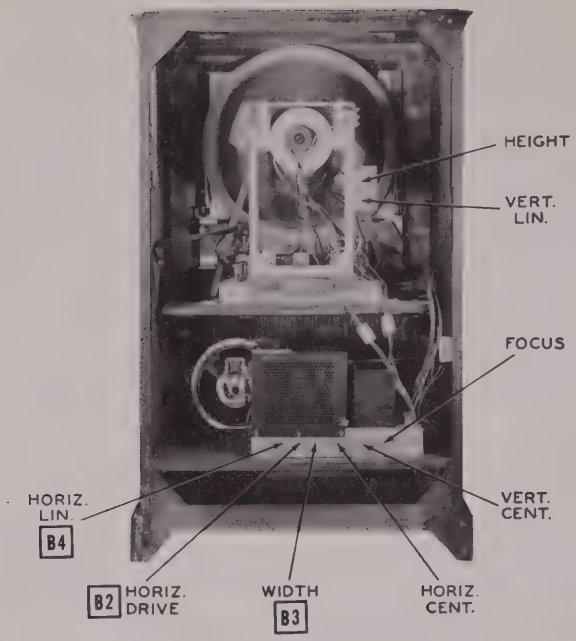
COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA DELCO PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L1	Ant. Input	0Ω				High Band
L2	Ant. Coil	0Ω				High Band
L3	Ant. Coil	0Ω				Part of tuner.
L4	RF Plate	0Ω				
L5	Mixer Grid	0Ω				
L6	Osc. Coils	0Ω				
L7	Cath. Choke	0Ω				See Note
L8	Fil. Choke	0Ω				
L9	1st VideoIF	.1Ω		1219233		
L10	2nd Video IF	.1Ω		1219233		
L11	3rd Video IF	.1Ω		1219233		
L12	4th Video IF	.1Ω		1219233		
L13	5th Video IF	.1Ω		1219233		
L14	Peaking	9Ω		1219234		Wound on 39KΩ resistor.
L15	Peaking	1lΩ		1219235		Wound on 1 Meg. resistor.
L16	Peaking	6.2Ω		1219426		Wound on 47KΩ resistor.
L17	Peaking	6.2Ω		1219236		Wound on 1 Meg. resistor.
L18	Peaking	8.2Ω		1219427		Wound on 5.6KΩ resistor.
L19	Peaking	7.6Ω		1219428		Wound on 1 Meg. resistor.
L20	Sound IF	4Ω		1219424		
L21	Ratio Det. Trans.	lΩ	4.5Ω	1219064		
L22	Width Cont.	.2Ω		1219241		
L23	Hor. Linearity	34Ω		1219240		

Note. This coil not used if a 6C4 is used for the Osc.

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M1	RF Tuner	1219344	Complete
M2	Ion Trap	1219454	
M3	Fuse	446657	.25A 250V
	Cabinet	1219359	
	Cabinet Back	1219360	
	Safety Glass	1219450	
	Escutcheon	1219449	Picture tube
	Protective Rim	1219437	Picture tube
	Protective Cover	1219438	Picture tube
	Knob	1219414	Vert. hold
	Knob	1219372	Hor. hold
	Knob	1219373	Volume, brightness, contrast
	Knob	1219451	Fine tuning
	Knob	1219952	Channel selector



CABINET-REAR VIEW

HORIZONTAL FREQUENCY AND LINEARITY ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably a test pattern.
2. Turn the horizontal hold control to the mid-position of its range.
3. Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.
4. Turn the horizontal drive trimmer (B2) clockwise as far as possible without crowding the right half of the picture or causing instability.
5. Adjust the width slug (B3), and the horizontal centering control until the picture fills the mask and is properly centered horizontally.
6. Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right. A slight readjustment of B2 may be necessary when making this adjustment.

DISASSEMBLY INSTRUCTIONS

1. Remove five push-on type control knobs.
2. Remove fourteen screws holding rear cover. Remove cover.
3. Disconnect two plugs on HV chassis.
4. Disconnect two plugs leading to picture tube yoke.
5. Disconnect speaker plug.
6. Disconnect picture tube HV cap.
7. Remove four screws holding wooden mounting of picture tube to cabinet. Remove picture tube and TV chassis.
8. Remove two screws holding interlock to cabinet.
9. Remove four screws holding HV chassis. Remove chassis.
10. Remove four 11/32" hex nuts holding speaker. Remove speaker.

EMERSON
MODEL 575 (Ch. 120068A, 120068B)

EMERSON MODEL 575

TRADE NAME	Emerson, Model 575 (Ch. 120068A, 120068B)
MANUFACTURER	Emerson Radio and Phonograph Corp., 111 8th Ave., New York 11, New York
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1U5 DET-AVC-AF, 3V4 Power Output, 117Z3 Rectifier
POWER SUPPLY	105-125 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply in Pack Form
RATING	.15 Amp. at 117 Volts AC or 50MA at 9 Volts DC and 10MA at 90 Volts DC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn the tuning gang fully closed and set the pointer 11/16 inches to the right of the left hand end of the dial backplate.

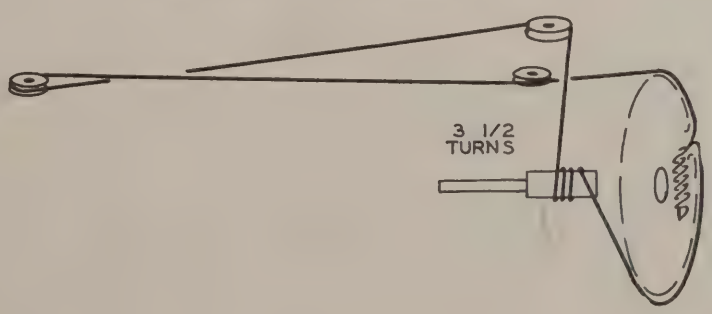
Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (Grid) of 1R5 (V2). Low side to B-.	455KC (400 ~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output.
2.	.01MFD	High side to pin 6 (Grid) of 1U4 (V1). Low side to B-.	"	"	"	A4	Adjust for MINIMUM output.
3.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		Loop	1400KC	Tune for max. output.	"	A6, A7	"

TUNING GANG FULLY CLOSED



DIAL CORD DRIVE

EMERSON
MODEL 575 (Ch. 120068A, 120068B)

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1950 by Howard W. Sams & Co., Inc., Indianapolis Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	800017	1U4	6AR	
V2	Converter	800110	1R5	7AT	
V3	IF Amp.	800017	1U4	6AR	
V4	DET.-AVC-AF	800019	1U5	6BW	
V5	Power Output	800018	3V4	6BX	
V6	Rectifier	800013	117Z3	4CB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150	925059	AF1686D20A	UP84415C10			● Filter
B	40	150						■ Filter
C	30	150						▲ Filter
D	100	25						Filament Bypass
C2	2.2							Ext. Ant. Coupling
C3	212		928104	1468-0002	5W5T2	GP2K-220	1FM-32	RF Coupling See Note
C4	.05	200	920060	P288-05	PTE4S5		TM-15	AVC Filter
C5	.1	200	920040	P288-1	PTE4P1		TM-1	Filament Bypass
C6	.05	200	920060	P288-05	PTE4S5		TM-15	AVC Filter
C7	212		928104	1468-0002	5W5T2	GP2K-212	1FM-32	RF Coupling
C8	.05	200	920060	P288-05	PTE4S5		TM-15	Osc. Anode Decoupling
C9	.1	200	920040	P288-1	PTE2P1		TM-1	Filament Bypass
C10	.1	200	920040	P288-1	PTE2P1		TM-1	Filament Bypass
C11	.01	400	920092	P488-01	PTE4S1	821-01	TM-11	IF Grid Filter
C12	2.2		915005					Neutralizing
C13A	200		*	1468-0002	5W5T2	GP2K-200	1FM-32	Diode RF Filter
B	200			1468-0002	5W5T2	GP2K-200	1FM-32	Diode RF Filter
C14	.002	400	920515	P688-002	PTE6D2	GP2M-002	TM-22	Audio Coupling
C15	.01	400	920092	P488-01	PTE4S1	821-01	TM-11	AF Amp. Screen Bypass
C16	212		928104	1468-0002	5W5T2	GP2K-220	1FM-32	AF Amp. Plate Bypass
C17	.005	400	920180	P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C18	.005	400	920180	P688-005	PTE6D5	811-005	TM-25	Output Plate Bypass
C19	.05	400	920539	P488-05	PTE4S5		TM-15	Line Filter
C20	.05	400	920539	P488-05	PTE4S5		72P51	Line Isolation See Note

* Items C13A, C13B and R9 are combined into one unit, obtainable under MFGR'S Part No. 928032.
Note. Used only in chassis 120068B.

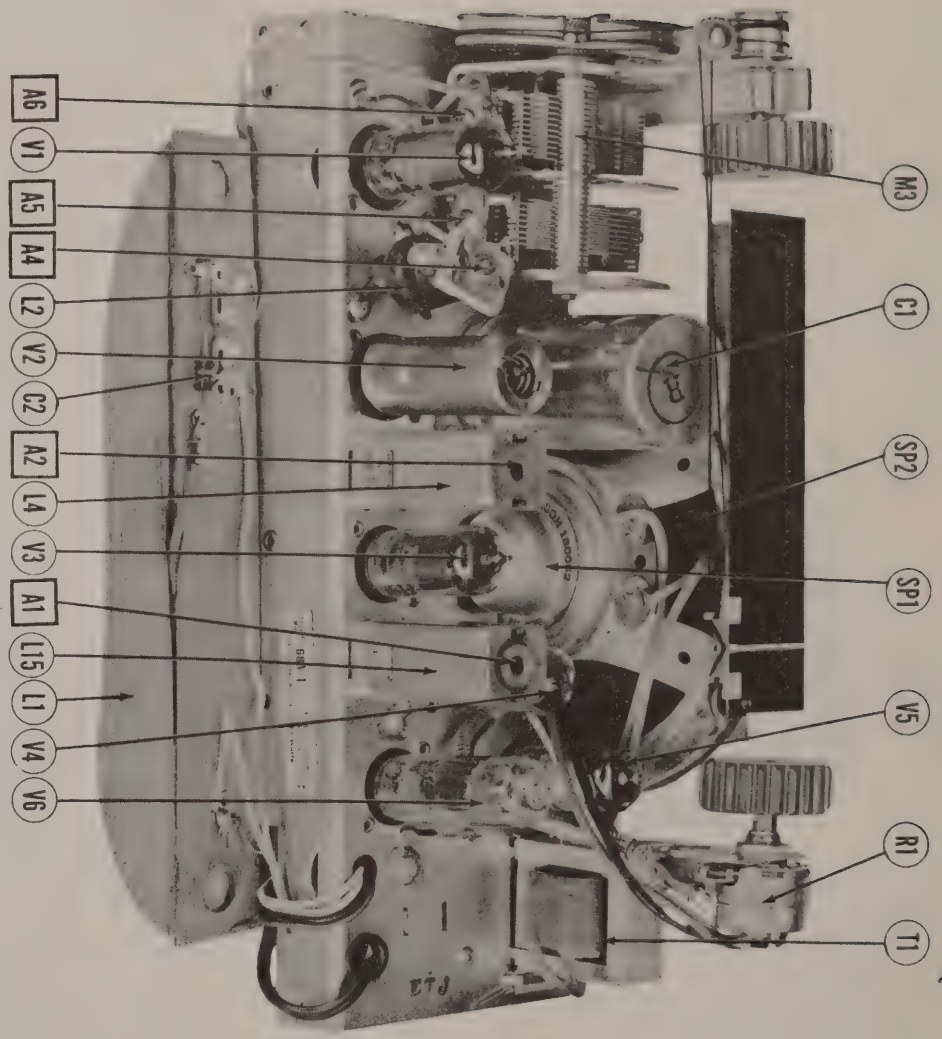
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	390063	Q13-137		Volume control
B	Switch		Not Req.	76-2		Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R2	3.3 Meg.	½	351330	BTS-3.3 Meg.	AVC Network
R3	3.3 Meg.	½	351330	BTS-3.3 Meg.	AVC Network
R4	15KΩ	½	340770	BTS-15K	RF Plate
R5	470KΩ	½	351130	BTS-470K	Conv. Grid See Note 1
R6	100KΩ	½	350970	BTS-100K	Osc. Grid
R7	15KΩ	½	340770	BTS-15K	Osc. Anode Decoupling
R8	3.3 Meg.	½	351330	BTS-3.3 Meg.	IF Grid
R9	47KΩ	½	*	BTS-47K	Diode Filter
R10	2.2 Meg.	½	351290	BTS-2.2 Meg.	AVC Network
R11	10 Meg.	½	351450	BTS-10 Meg.	AF Grid
R12	3.3 Meg.	½	351330	BTS-3.3 Meg.	AF Screen
R13	470KΩ	½	351130	BTS-470K	AF Plate

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	EMERSON PART No.	IRC PART No.	
R14	1. 5 Meg.	½	351250	BTS-1. 5 Meg.	Output Grid
R15	560Ω	½	340430	BTS-560	Filament String
R16	1500Ω	½	340530	BTS-1500	Filament String
R17	1500Ω	½	340530	BTS-1500	Filament String
R18	1800Ω	½	340550	BTS-1800	Filament String
R19A	1100Ω	4	394041	ABA-2250 #	Filter-Wire Wound
B	1100Ω	4			Filament Dropping-Wire Wound
R20	1500Ω	½	340530	BTS-1500	Filter
R21	39Ω	1	370150		Surge Limiter
R22	1 Meg.	½	351210	BTS-1 Meg.	RF Grid See Note 2

Set slider at 1125Ω from one end.
* Items C13A, C13B and R9 are combined into one unit, obtainable under MFGR'S Part #928032.
Note 1. Chassis 120068B uses 1 Meg. resistor in this application.
Note 2. Used only in chassis 120068B.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9.3KΩ	3.7Ω	440Ω	.4Ω	734039	A-3329 †	A-2932 †	RO-16 †	† Bend mounting tabs down and mount on chassis.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			EMERSON PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3.7Ω	180052			
	CONE DIA.	V. C. DIA.				
SP2	4 3/4"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
L1A	Loop Ant.	3Ω		700039		Chassis 120068A
B	Loop Ant.			700048		Chassis 120068B
L2A	Wave Trap	65Ω		708060		Chassis 120068A
B	Wave Trap			708029		Chassis 120068B
L3	Osc. Coil	2.8Ω	9Ω	716029	14-1074	
L4	Input IF	21Ω	21Ω	720525	16-6668	Alternate part #720062
L5	Output IF	24Ω	33Ω	720066		

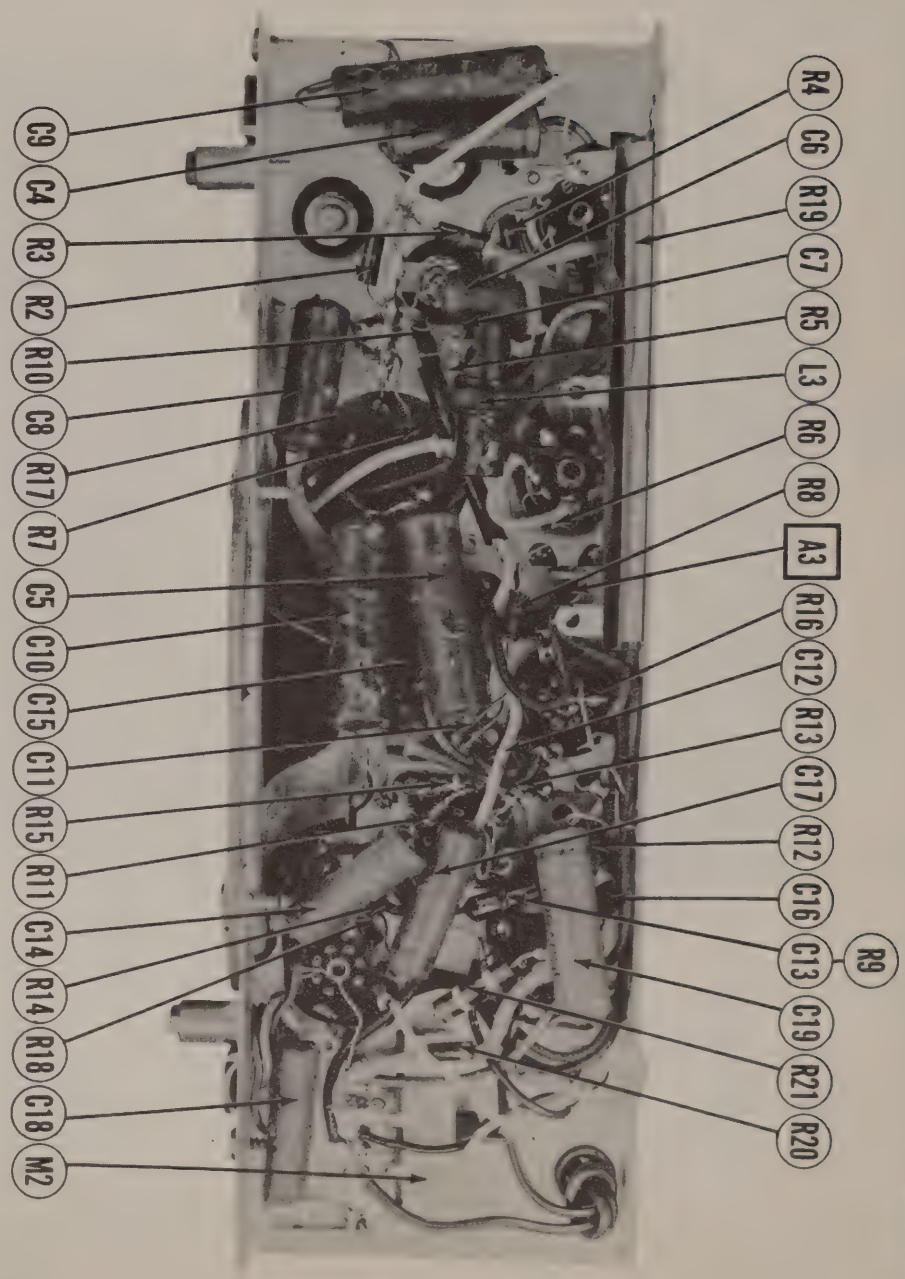
BATTERIES

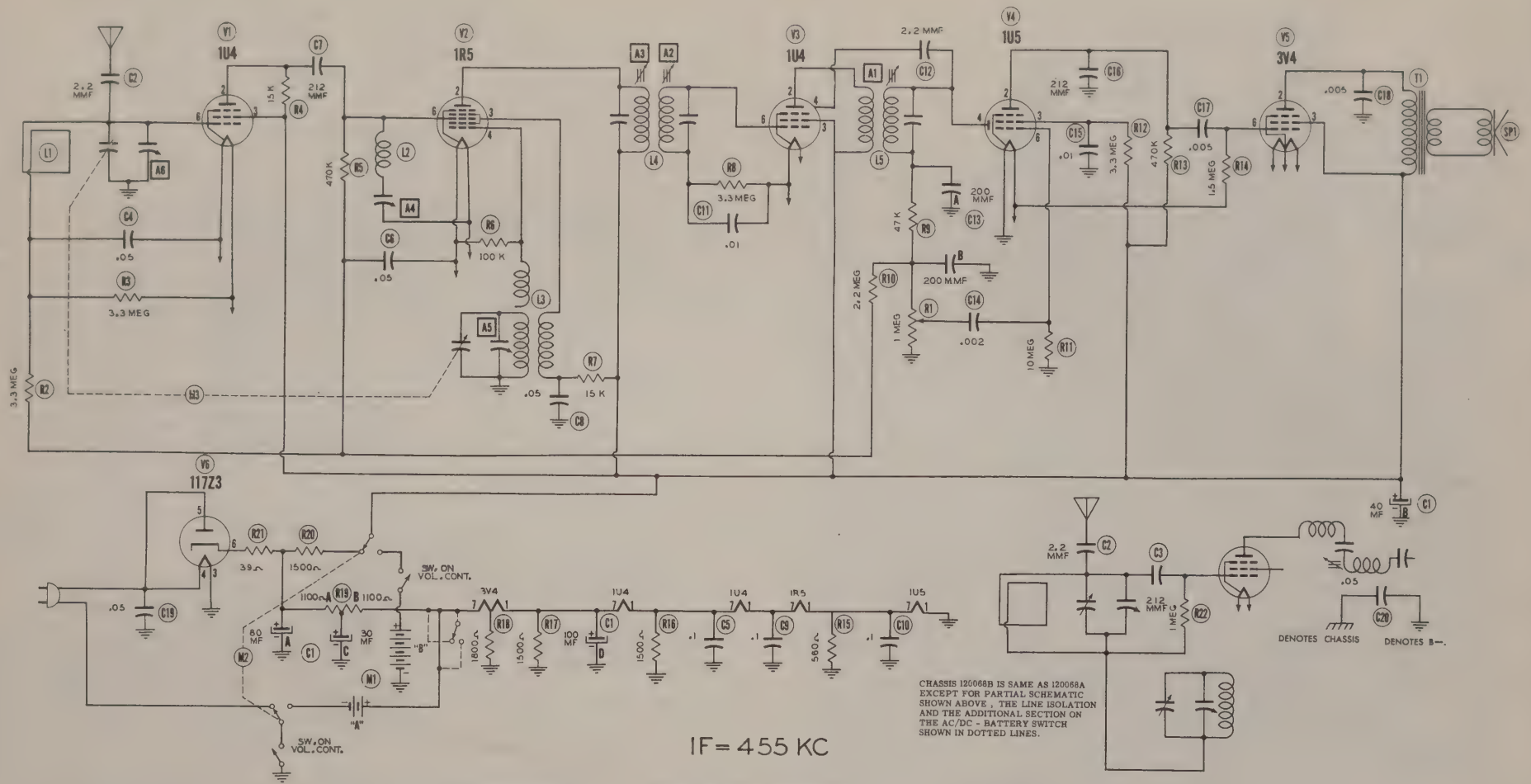
ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	9V "A" 90V "B"				753			F6A60	

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M2A	Switch	510008	AC/DC-Battery (Ch. 120068A)
B	Switch	510043	AC/DC-Battery (Ch. 120068B)
M3	2 Gang Var. Cap.	900043	(8-392MMF, 13-186MMF)
	Cabinet	140182	Specify color
	Dial Crystal	520092	
	Knob	460082	Specify color
	Dial Pointer	625041	

CHASSIS—BOTTOM VIEW





CHASSIS 120068B IS SAME AS 120068A EXCEPT FOR PARTIAL SCHEMATIC SHOWN ABOVE , THE LINE ISOLATION AND THE ADDITIONAL SECTION ON THE AC/DC - BATTERY SWITCH SHOWN IN DOTTED LINES.

IF = 455 KC

NOTE: V & R TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	2.7VDC	75VDC	90VDC	0V.	2.9VDC	.1VDC	3.9VDC
V 2	1R5	1.4VDC	90VDC	55VDC	§-2.9VDC	1.4VDC	.1VDC	2.7VDC
V 3	1U4	3.9VDC	90VDC	90VDC	0V.	3.9VDC	.2VDC	5.1VDC
V 4	1U5	0V.	50VDC	17VDC	-.2VDC	-.1VDC	0V.	1.4VDC
V 5	3V4	5.1VDC	88VDC	90VDC	0V.	6.4VDC	0V.	7.6VDC
V 6	117Z3	117VAC	114VDC	0V.	117VAC	117VAC	117VDC	0V.

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	*	†17KΩ	†1.5KΩ	Inf.	*	2.5 Meg.	*
V 2	1R5	*	†1.5KΩ	†17KΩ	100KΩ	*	2.5 Meg.	*
V 3	1U4	*	†1.5KΩ	†1.5KΩ	Inf.	*	3.3 Meg.	*
V 4	1U5	*	†470KΩ	†3.3 Meg.	1 Meg.	1 Meg.	10 Meg.	*
V 5	3V4	*	†2KΩ	†1.5KΩ	100KΩ	*	1.5 Meg.	*
V 6	117Z3	400Ω	2KΩ	0Ω	400Ω	400Ω	2KΩ	Inf.

* DO NOT USE OHMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM PIN 6 OF V6.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

KARADIO
MODELS 1275, 1275A

KARADIO
MODELS 1275, 1275A

KARADIO
MODELS 1275, 1275A

TRADE NAME	Karadio, Models 1275, 1275A
MANUFACTURER	Eckstein Radio and Television Co., Leroy, Minnesota
TYPE SET	Battery Operated Superheterodyne Universal Automotive Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 DET-AVC-AF, 6AQ5 Power Output, 6X5GT Rectifier
POWER SUPPLY	6 Volts Storage Battery — RATING 5.4 Amp. at 6 Volts DC
TUNING RANGE—BROADCAST	535-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (Gird) of 6BE6 (V2). Low side to chassis.	470KC (400 ~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	.05MFD	"	1600KC	"	"	A5	"
3.	.05MFD	"	535KC	Tuning gang fully closed	"	A6	Adjust for maximum output. Repeat steps 2 and 3 until no further improvement can be made.
4.	65MMF	High side to ant. connector. Low side to chassis.	1400KC	Tune for max. output.	"	A7	Adjust for maximum output.

After set is installed in auto, fully extend antenna and tone in a weak station near 1400KC. Adjust A8 for maximum volume.

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PARTS LIST AND DESCRIPTIONS

KARADIO MODEL 1275

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: KARADIO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	DET.-AVC-AF	6AT6	6AT6	7BT	
V5	Power Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KARADIO PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	450		AF44J	UP2245		EL-220	■ Filter
B	20	450						▲ Filter
C2	10	25		PRS25/10	BR102A		TA-10	Output Cathode Bypass
C3	.1	200		P288-1	PTE4P1		TM-1	RF Cathode Bypass
C4	500	500		1468-0005	5W5T5	GP2K-500	1FM-35	RF Coupling
C5	.05	400		P488-05	PTE4S5		TM-15	RF Plate Decoupling
C6	.1	200		P288-1	PTE4P1		TM-1	AVC Filter
C7	.1	200		P288-1	PTE4P1		TM-1	IF Cathode Bypass
C8	.05	200		P288-05	PTE4S5		TM-15	Decoupling
C9	.01	600		P688-01	PTE6S1	821-01	TM-11	Audio Coupling
C10	250	500		1468-00025	5W5T25	GP2K-250	1FM-325	AF Amp. Plate Bypass
C11	.015	400		P488-015	PTE6S15		TM-11	Audio Coupling
C12	.01	600		P688-01	PTE6S1	821-01	TM-11	Output Plate Bypass
C13	.05	400		P488-05	PTE4S5		TM-15	RF Bypass See Note
C14	.006	1600		P1688-006	PTE16D6		MB-26	Buffer
C15	.5	100		P288-5			68P20	Hash Filter
C16	.5	100		P288-5			68P20	Hash Filter

Note. Not used in all models.

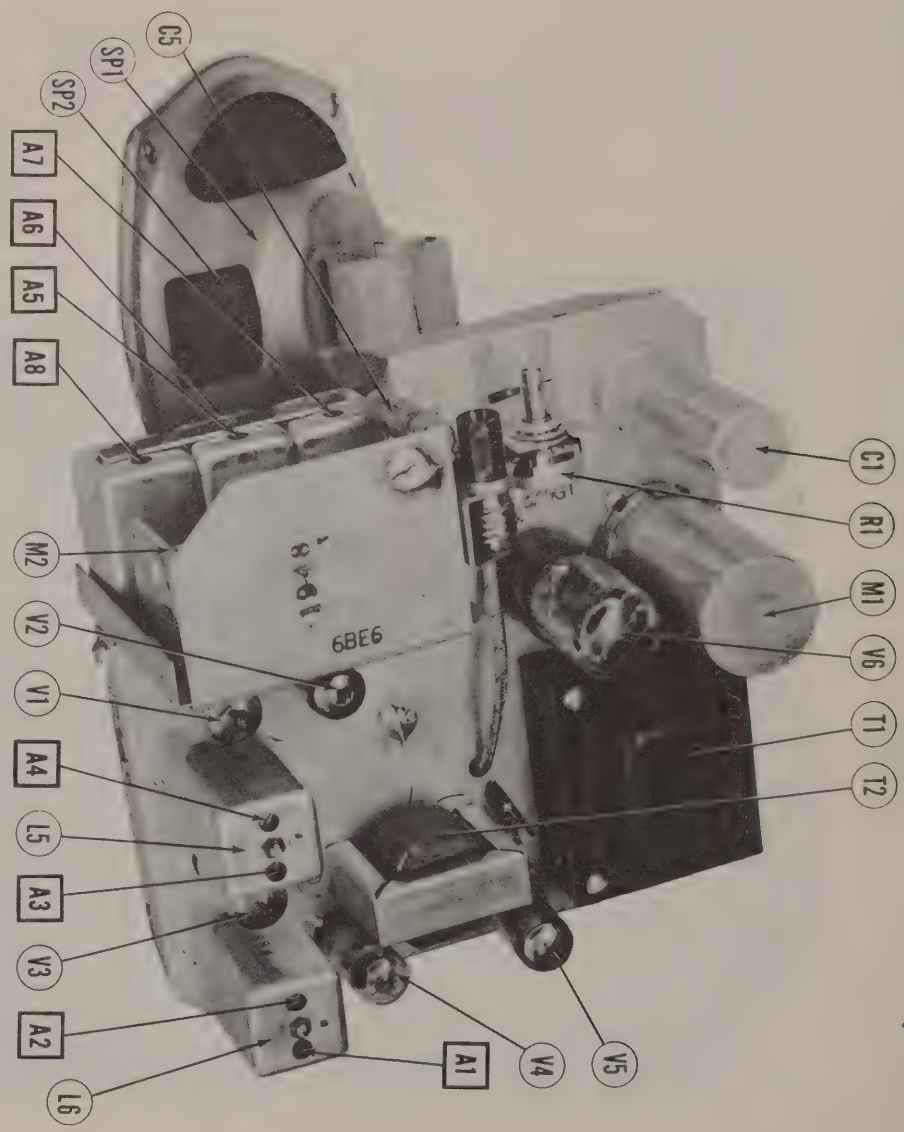
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KARADIO PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½		Q11-137		Volume control
B	Shaft			GQ		Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KARADIO PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R2	470KΩ	½		BTS-470K	RF Grid
R3	150Ω	½		BW-½-150	RF Cathode
R4	1200Ω	½		BTS-1200	RF Plate Decoupling
R5	470KΩ	½		BTS-470K	Conv. Grid
R6	27KΩ	½		BTS-27K	Osc. Grid
R7	12KΩ	2		BT-2-12K	Screen Dropping
R8	390Ω	½		BW-½-390	IF Cathode
R9	1 Meg.	½		BTS-1 Meg.	AVC Network
R10	10 Meg.	½		BTS-10 Meg.	AF Grid
R11	220KΩ	½		BTS-220K	AF Plate
R12	470KΩ	½		BTS-470K	Output Grid
R13	450Ω	1		BTA-470	Output Cathode
R14	1000Ω	1		BW-1-1000	Filter
R15	56Ω	½		BW-½-56	Hash Suppression
R16	56Ω	½		BW-½-56	Hash Suppression

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	KARADIO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	6VDC at 3A	500VCT .042ADC				P-4060 *		

* Mount horizontally with old half shell.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		KARADIO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	4.5KΩ	3.5Ω	285Ω	.5Ω		A-3849	A-2930 †	RO-8	† Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			KARADIO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-108		
SP1	PM	3.5Ω		MOD. P6-X	6A1	
	CONE DIA.	V. C. DIA.				
SP2	6"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	KARADIO PART No.	MEISSNER PART No.	
L1	Ant. Loading	3Ω				
L2	Ant. Coil					
L3	RF Coil					
L4	Osc. Coil	.8Ω				
L5	1st IF	12Ω	12Ω			
L6	2nd IF	12Ω	12Ω			
L7	Hash Choke	0Ω				

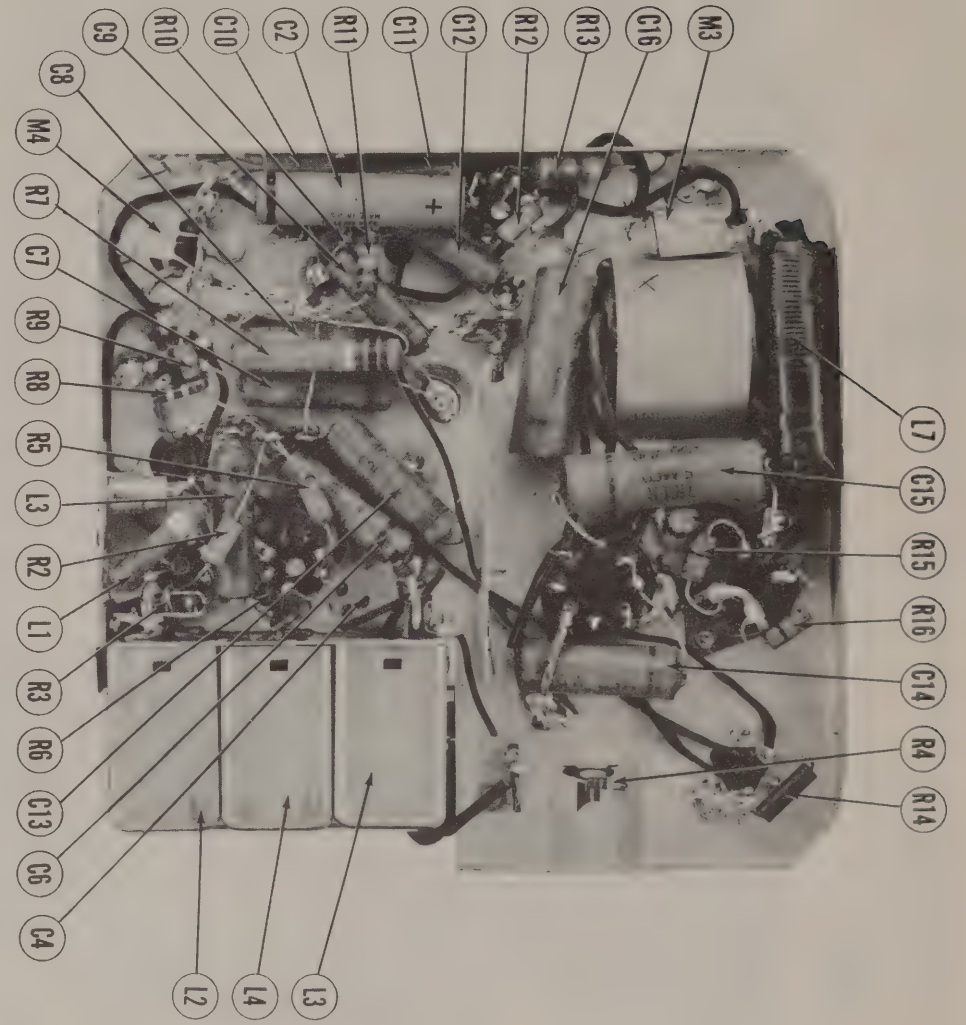
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				INSTALLATION NOTES
				KARADIO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6V	115~		A-100	C-00	5301	

MISCELLANEOUS

ITEM No.	PART NAME	KARADIO PART No.	NOTES
M2	3 Gang Var. Cap.		(22-410MMF) Each section
M3	Spark Plate		
M4	Diode Filter		

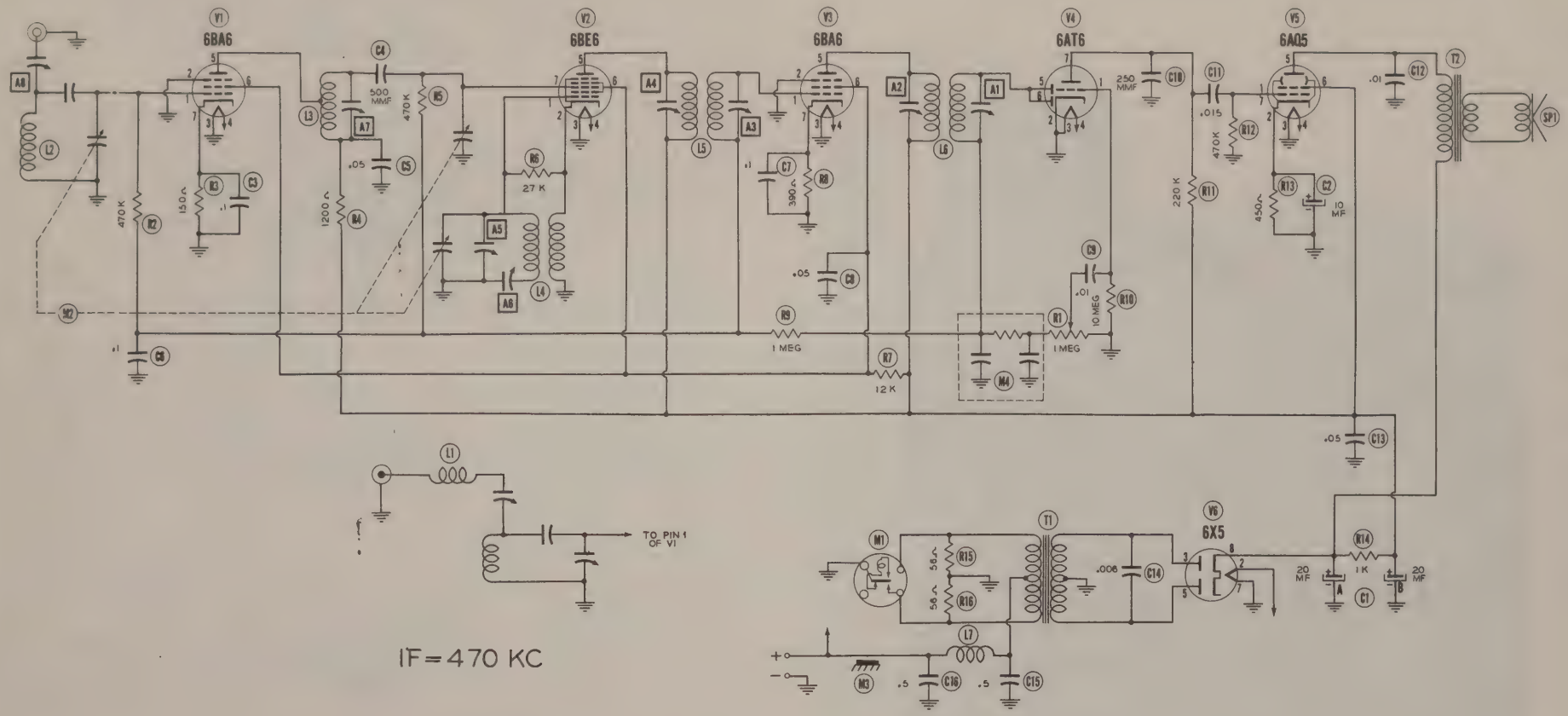
CHASSIS—BOTTOM VIEW



SET 85 FOLDER 7

KARADIO MODEL 1275

KARADIO MODEL 1275



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	-.1VDC	0V.	0V.	6.3VDC	210VDC	90VDC	1.2VDC	
V 2	6BE6	8-5VDC	0V.	0V.	6.3VDC	215VDC	90VDC	-.1VDC	
V 3	6BA6	-.1VDC	0V.	0V.	6.3VDC	215VDC	90VDC	2.5VDC	
V 4	6AT6	-.7VDC	0V.	0V.	6.3VDC	-.5VDC	-.5VDC	82VDC	
V 5	6AQ5	0V.	13.5VDC	0V.	6.3VDC	227VDC	2.5VDC	0V.	
V 6	6X5GT	0V.	6.3VDC	270VAC	0V.	270VAC	270VAC	0V.	235VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	2.5 Meg.	0Ω	0Ω	.1Ω	†2.2KΩ	†13KΩ	150Ω	
V 2	6BE6	27KΩ	1Ω	0Ω	.1Ω	†1000Ω	†13KΩ	2.5 Meg.	
V 3	6BA6	2 Meg.	0Ω	0Ω	.1Ω	†1000Ω	†13KΩ	390Ω	
V 4	6AT6	10 Meg.	0Ω	0Ω	.1Ω	1 Meg.	1 Meg.	†220KΩ	
V 5	6AQ5	470KΩ	450Ω	0Ω	.1Ω	†270Ω	†1000Ω	470KΩ	
V 6	6X5GT	0Ω	.1Ω	280Ω	0Ω	310Ω	310Ω	0Ω	50KΩ

† MEASURED FROM PIN 8 OF V6.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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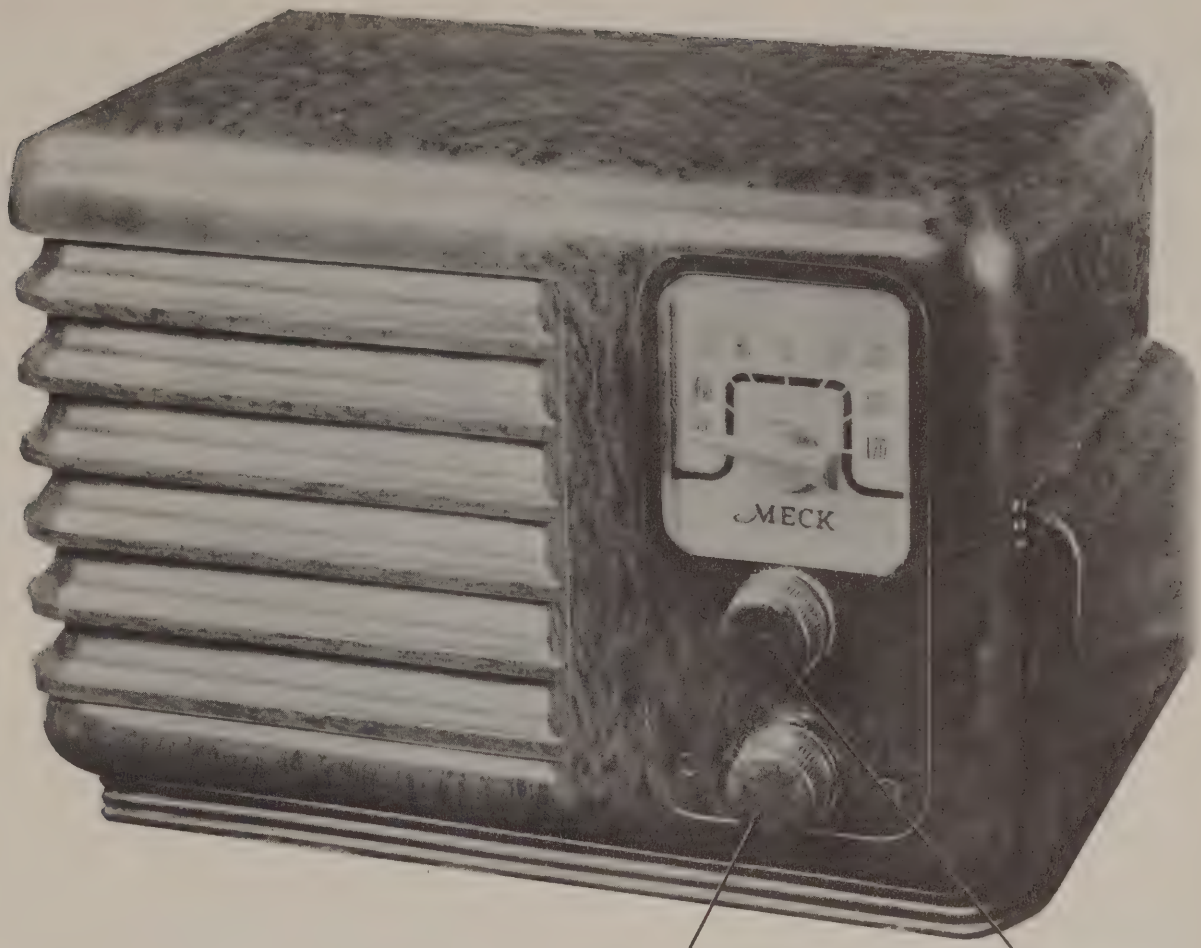
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MECK
MODEL EC720



MECK
MODEL EC720

MECK MODEL EC720

TRADE NAME	Meck, Model EC720
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12AU6 IF Amp., 12AV6 or 12AT6 DET-AVC-AF, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .26 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	550-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator on rear section of tuning gang. Low side to B-.	455KC (400 ~ Mod.)	Tuning gang fully closed	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1500KC	1500KC	"	A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12AU6	12AU6	7BK	
V3A	DET.-AVC-AF	12AV6	12AV6	7BT	
B	DET.-AVC-AF	12AT6	12AT6	7BT	
V4	Power Output	50B5	50B5	7BZ	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MECK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	CL-10017	PRSA150/50-30	EDL5315		TA-530	Filter Red
B	30	150						Filter Blue
C2	.05	200	CP-12503	P288-05	PTE4S5		TM-15	AVC Filter
C3	.05	200	CP-12503	P288-05	PTE4S5		72P51	Line Isolation
C4	50		CM-15500	1468-00005	5W5Q5	GP1K-50	1FM-45	IF Coupling
C5	250		CM-15251	1468-00025	5W5T25	GP2K-250	1FM-325	Diode RF Filter
C6	.0025	1400	CP-12202	P688-0022	PTE6D2	GP2M-0025	TM-22	Audio Coupling
C7	.005	600	CP-12502	P688-002	PTE6D5	811-005	TM-25	Audio Coupling
C8	.01	600	CP-14103	P688-01	PTE6S1	821-01	TM-11	Output Plate Bypass
C9	.02	400	CP-14203	P488-02	PTE4S2		TM-12	Line Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	VC-12106	Q13-133	M-60-Z	Volume control
B	Switch		Not Req.	76-1	SW-A	Attach to R1A per instructions

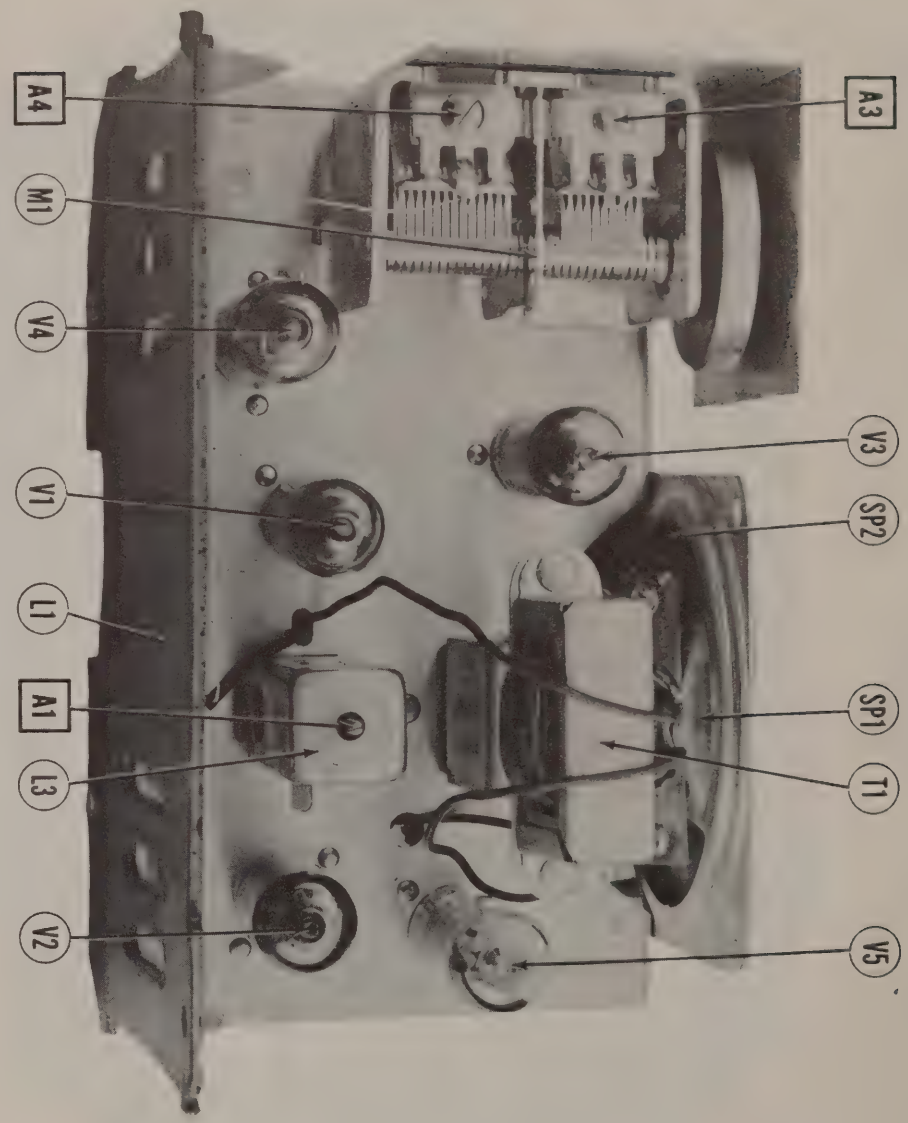
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	IRC PART No.	IDENTIFICATION CODES
R2	15KΩ	½	RC-31502	BTS-15K	Osc. Grid
R3	2.2 Meg.	½	RC-32204	BTS-2.2 Meg.	AVC Network
R4	10KΩ	½	RC-31002	BTS-10K	IF Plate
R5	100KΩ	½		BTS-100K	AVC Network
R6	10 Meg.	½	RC-31005	BTS-10 Meg.	AF Grid
R7	220KΩ	½	RC-32203	BTS-220K	AF Plate
R8	470KΩ	½	RC-34703	BTS-470K	Output Grid
R9	150Ω	2	RC-31500	BW-2-150	Output Cathode
R10	2000Ω	1	RC-42001	BW-1-2200	Filter
R11	22Ω	½	RC-30220		Rect. Ballast

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T1	2KΩ	3.3Ω	146Ω	.9Ω	TO-10000	A-3876	A-2928	RO-2	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.
L1	Loop Ant.	3Ω		ALP-10012A	
L2	Osc. Coil	.5Ω	5.6Ω	TRG-10017	14-1074
L3	IF Trans.	22Ω	25Ω	TS-10039	16-6678

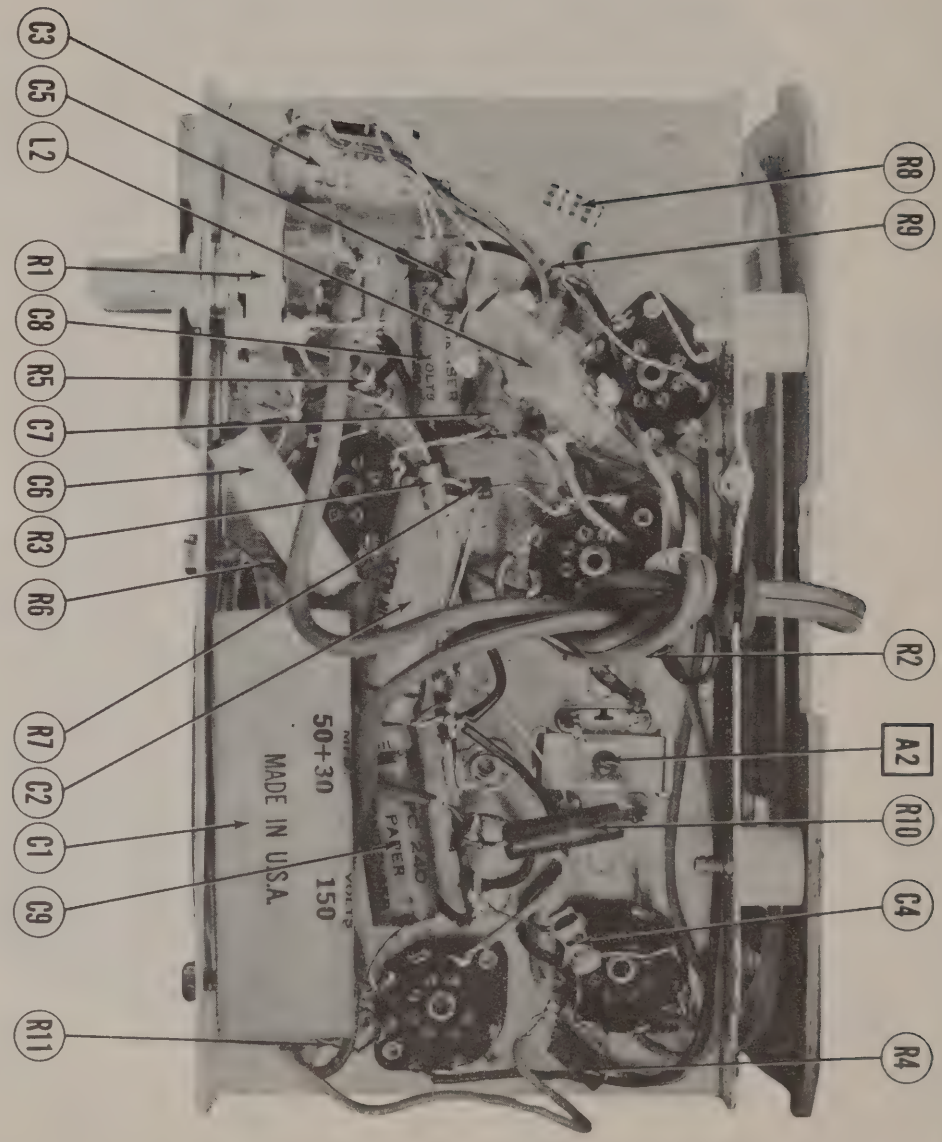
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.				
SP1	PM	3.3Ω	SRP-10007		3A07	
	CONE DIA.	V. C. DIA.				
SP2	3 1/4"	9/16"				

MISCELLANEOUS

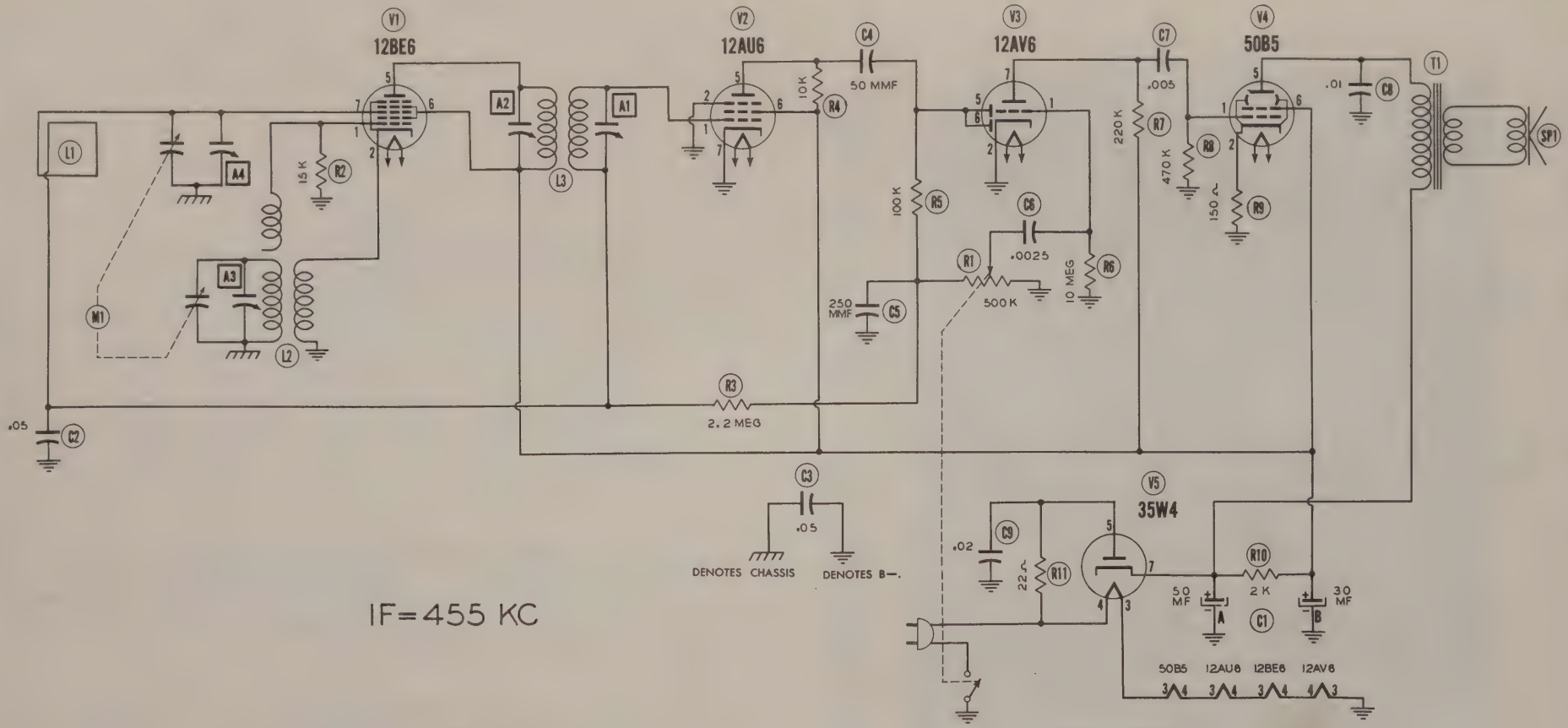
ITEM No.	PART NAME	MECK PART No.	NOTES
M1	2 Gang Var. Cap.	CV-10010	(25-485MMF, 30-380MMF)

CHASSIS—BOTTOM VIEW



MECK MODEL EC720

MECK MODEL EC720



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-4.2VDC	0V.	25VAC	12VAC	87VDC	87VDC	-.7VDC
V 2	12AU6	-.7VDC	0V.	38VAC	25VAC	42VDC	87VDC	0V.
V 3	12AV6	-.8VDC	0V.	0V.	12VAC	-5VDC	-.5VDC	70VDC
V 4	50B5	0V.	5.5VDC	88VAC	38VAC	120VDC	87VDC	0V.
V 5	35W4	0V.	0V.	88VAC	117VAC	115VAC	110VAC	127VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER:

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	15KΩ	.5Ω	24Ω	12Ω	†2KΩ	†2KΩ	3 Meg.
V 2	12AU6	3 Meg.	0Ω	36Ω	24Ω	†12KΩ	†2KΩ	0Ω
V 3	12AV6	10 Meg.	0Ω	0Ω	12Ω	600KΩ	600KΩ	†220KΩ
V 4	50B5	470KΩ	150Ω	86Ω	36Ω	†210Ω	†2KΩ	470KΩ
V 5	35W4	Inf.	Inf.	86Ω	120Ω	140Ω	110Ω	45KΩ

† MEARSURED FROM PIN 7 of V5.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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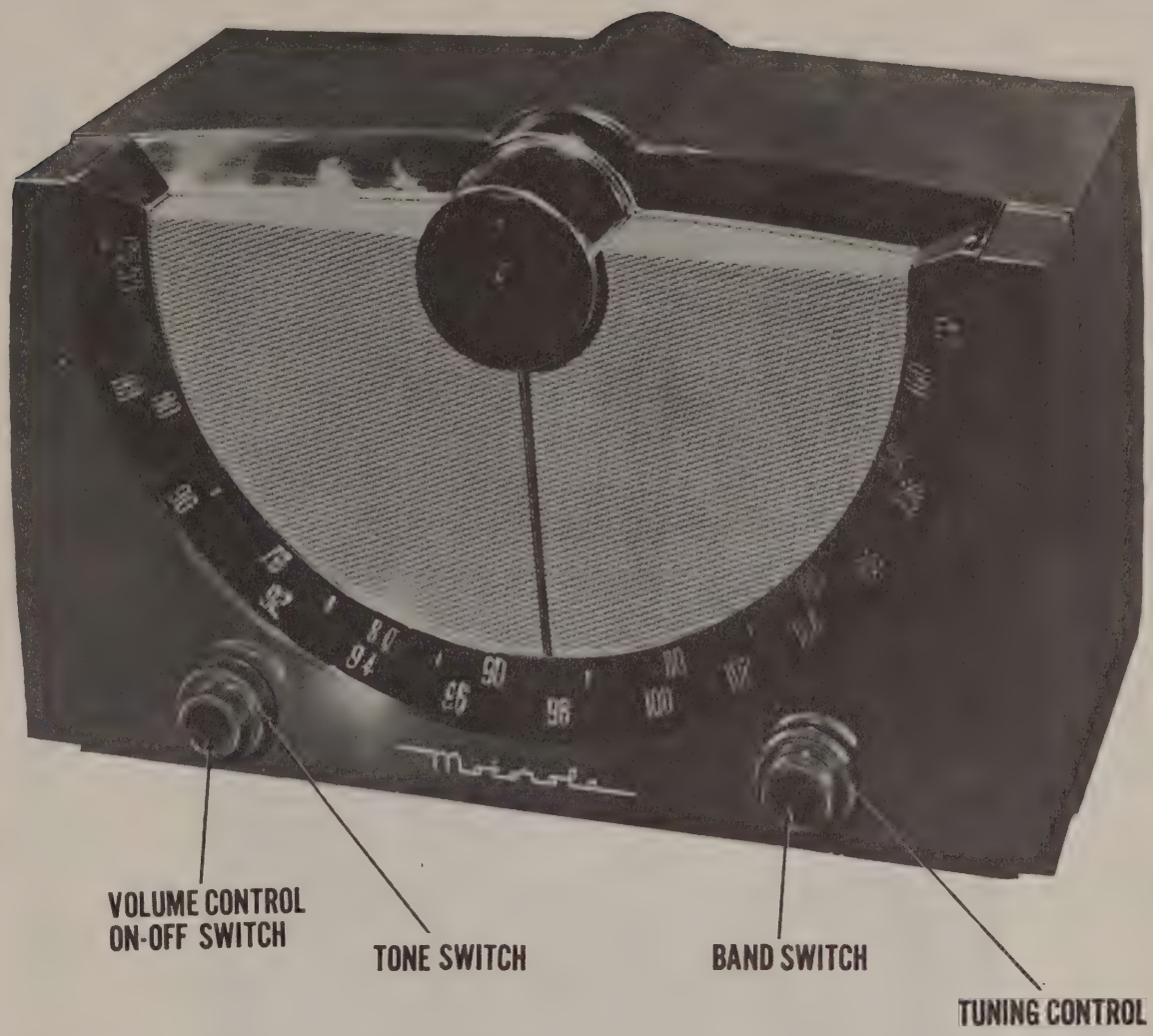
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA MODELS 79XM21, 79XM22 (CH. HS-168)



MOTOROLA MODELS 79XM21, 79XM22 (CH. HS-168)

MOTOROLA MODEL 79XM21

TRADE NAME	Motorola, Models 79XM21, 79XM22 (Ch. HS-168)		
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Illinois		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna		
TUBES(SIX)	Types 12BA6 RF Amp., 12BA7 Converter, 12BA6 1st IF Amp., 12BA6 FM 2nd IF Amp., 19T8 DET-AVC-AF, 50C5 Power Output		
POWER SUPPLY	110-120 Volts AC	RATING	.35 Amp. at 117 Volts AC
TUNING RANGE-BROADCAST	535-1620KC	FREQ. MOD.	88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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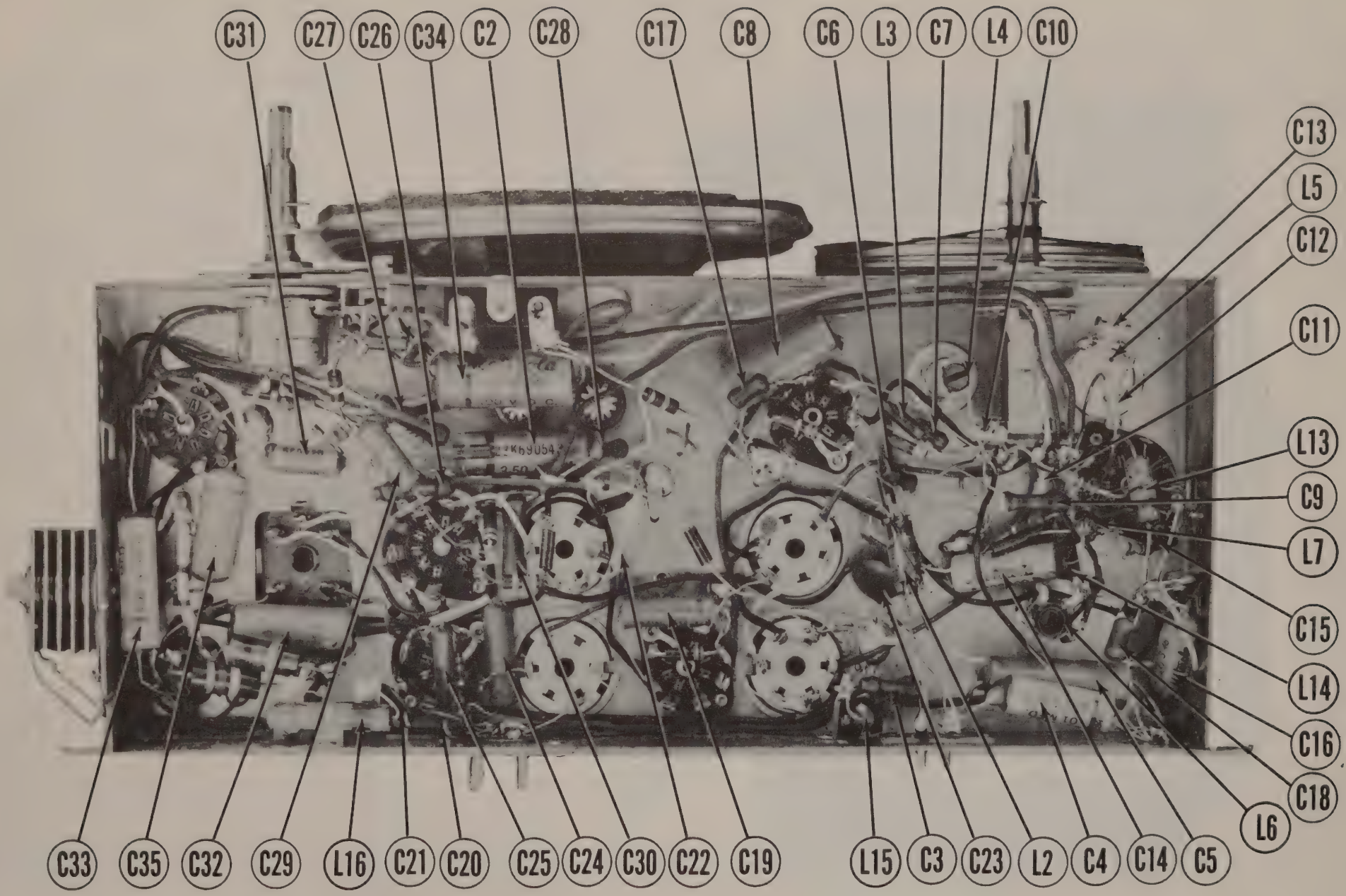
C31
C27
C26
C34
C2
C28
C17
C8
C6
L3
C7
L4
C10
C13
L5
C12
C11
L13
C9
L7
C15
L14
C16
C18
L6
C33
C35
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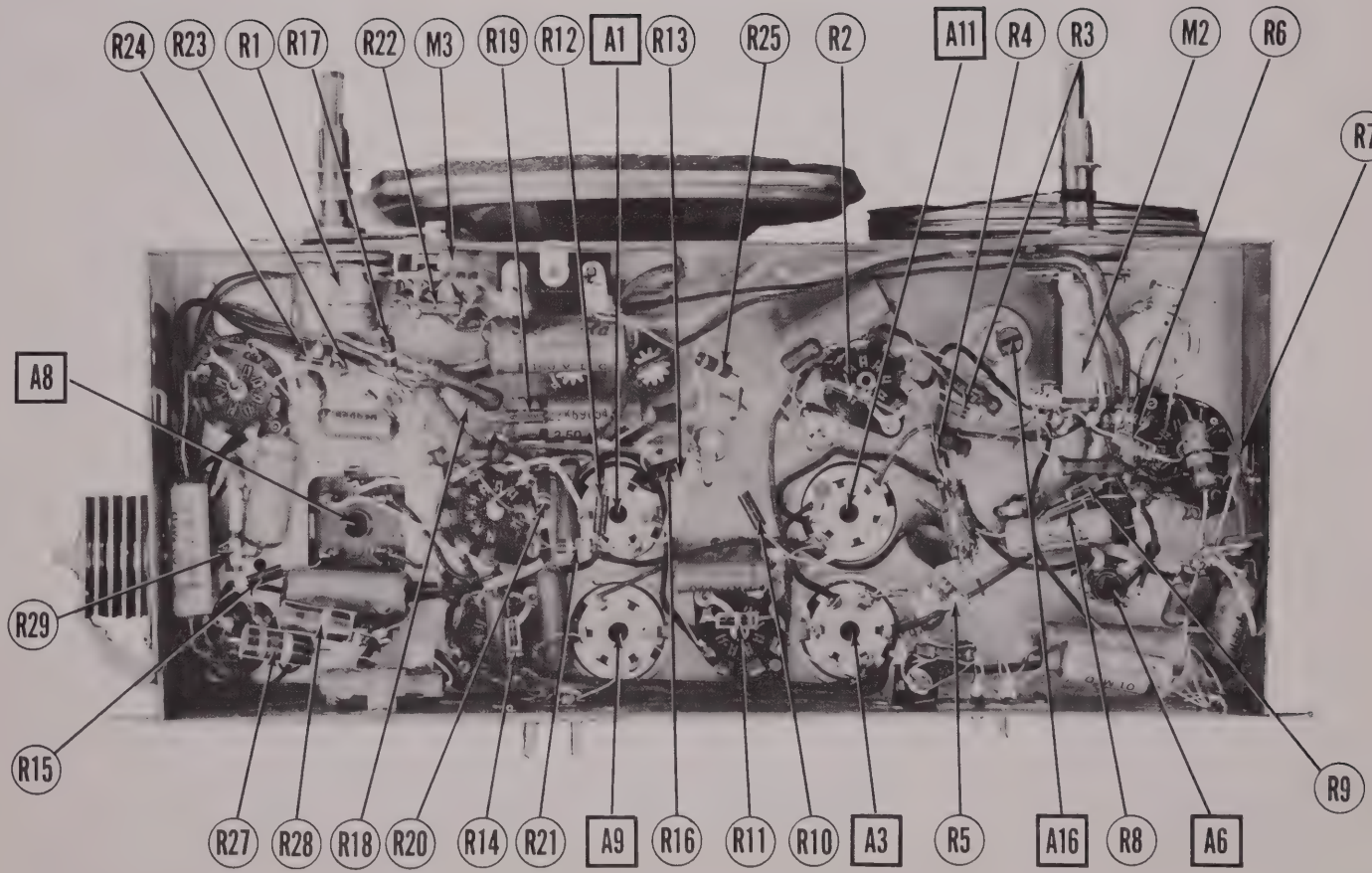
L2
C4
C14
C5


R24
R23
R1
R17
R22
M3
R19
R12
A1
R13
R25
R2
A11
R4
R3
M2
R6
R7
A8
R29
R15
R9
R27
R28
R18
R20
R14
R21
A9
R16
R11
R10
A3
R5
A16
R8
A6

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (Grid) of 12BA7 (V2). Low side to chassis.	455KC (400 ~ Mod.)	AM (CW)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	.1MFD	"	1620KC (400 ~ Mod.)	"	"	"	A5	"
3.	.1MFD	"	538KC (400 ~ Mod.)	"	Tuning gang fully closed	"	A6	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation. Repeat steps 1 and 2 until no further improvement can be made.
4.		Loop	1400KC (400 ~ Mod.)	"	Tune for max. output	"	A7	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from point A to chassis. The junction of these two resistors is alignment point C as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.001MFD	High side to pin 7 (Grid) of 12BA7 (V2). Low side to chassis.	10.7MC (Unmod.)	FM (CCW)	Tuning gang fully open	DC Probe to Point (A) Common to chassis.	A8, A9 A10, A11 A12	Adjust for maximum deflection.
6.	.001MFD	"	"	"	"	DC Probe to Point (B) Common to Point (C)	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ~ modulation and 450KC sweep. Use 120 ~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to pin 7 (Grid) of 12BA7 (V2). Low side to chassis.	10.7MC (450KC Sweep)	FM (CCW)	Point of non interference	Vert. Amp. to Point (A) Low side to chassis.	A8, A9 A10, A11, A12	Disconnect stabilizer capacitor C2. Adjust for maximum amplitude and symmetry as per Fig 1.
6.	.001MFD	"	"	"	"	Vert. Amp. to Point (B) Low side to chassis.	A13, A8	Reconnect capacitor C2. Adjust A13 so 10.7MC occurs at center of crossover lines as per Fig 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.		Loop	1320KC (400 ~ Mod.)	AM	Tune for max. output.	Note. Use output meter across voice coil		Tune in the test signal. This is a calibration point for the FM band. Do not change this setting during step 8.
8.	300Ω carbon res.	High side thru 300Ω to pin 7 (Grid) of 12BA7 (V2). Low side to chassis.	105MC (Unmod.)	FM	Leave tuning gang at setting obtained in step 7.	DC Probe to Point (A) Common to chassis.	A14	Adjust for maximum deflection.
9.	Turn tuning gang fully closed and turn adjustment nut A15 counter-clockwise until the top end of core is even with end of the pipe, then turn A15 four turns clockwise.							
10.	300Ω carbon res.	High side thru 300Ω to FM antenna terminal "2", (open jumper between terminals.) Low side to chassis.	90MC (Unmod.)	FM	Tune for max. deflection	DC Probe to Point (A) Common to chassis.	A16	Adjust for maximum deflection.
11.	"	"	105MC (Unmod.)	"	"	"	A15	Adjust for maximum deflection. Repeat steps 10 and 11 until no further improvement can be made. Make A16 the last adjustment.

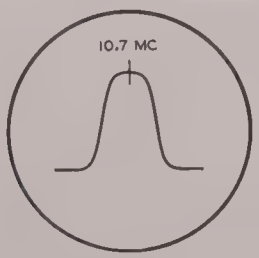


FIG. 1

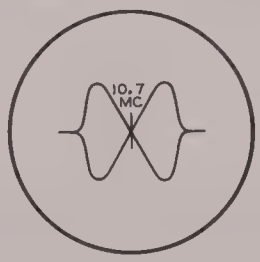
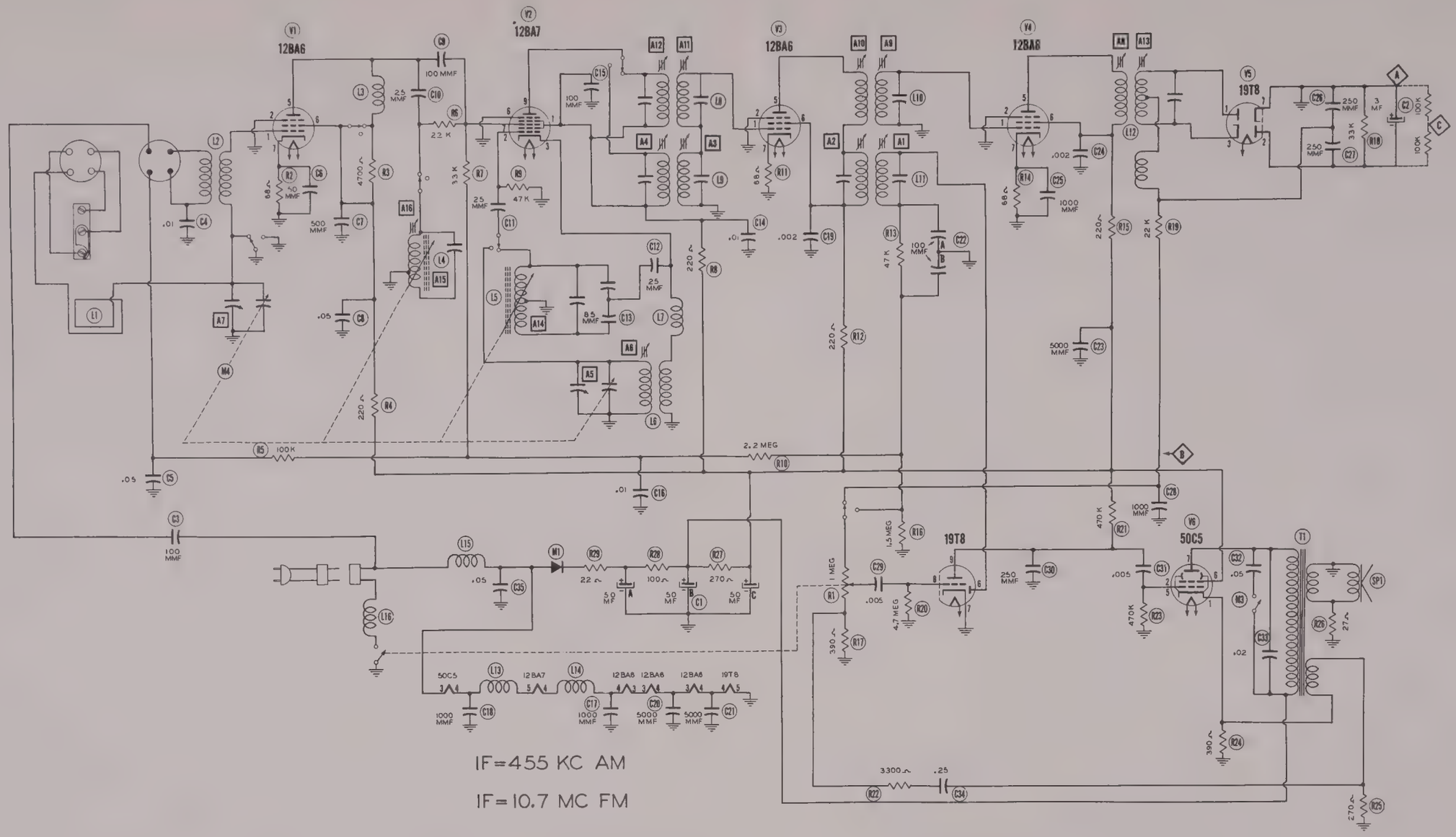


FIG. 2



IF=455 KC AM

IF=10.7 MC FM

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1A	12BA6	-.2VDC	0V.	44VAC	55VAC	65VDC	100VDC	.7VDC		
† V1B	12BA6	0V.	0V.	55VAC	55VAC	100VDC	100VDC	.8VDC		
V2A	12BA7	100VDC	‡-5.2VDC	0V.	55VAC	66VAC	0V.	-.2VDC	0V.	100VDC
† V2B	12BA7	100VDC	‡-3VDC	0V.	55VAC	66VAC	0V.	-.4VDC	0V.	100VDC
V3	12BA6	0V.	0V.	44VAC	32VAC	100VDC	100VDC	1VDC		
† V4	12BA6	0V.	0V.	32VAC	19VAC	100VDC	100VDC	1VDC		
V5A	19T8	-.4VDC	-1.1VDC	-8VDC	19VAC	0V.	-.8VDC	0V.	-.8VDC	40VDC
† V5B	19T8	-.4VDC	-1.1VDC	-.4VDC	19VAC	0V.	-.5VDC	0V.	-.5VDC	40VDC
V6	50C5	6.8VDC	0V.	117VAC	86VAC	0V.	100VDC	112VDC		

‡ TAKEN WITH VACUUM TUBE VOLTMETER.
† TAKEN IN FM POSITION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1A	12BA6	3.5 Meg.	0Ω	40Ω	48Ω	†5KΩ	†600Ω	68Ω		
† V1B	12BA6	0Ω	0Ω	40Ω	48Ω	†600Ω	†600Ω	68Ω		
V2A	12BA7	†600Ω	47KΩ	.1Ω	50Ω	63Ω	0Ω	3.5 Meg.	0Ω	†600Ω
† V2B	12BA7	†600Ω	47KΩ	.1Ω	50Ω	63Ω	0Ω	22KΩ	0Ω	†600Ω
V3	12BA6	15Ω	0Ω	40Ω	28Ω	†600Ω	†600Ω	68Ω		
† V4	12BA6	.9Ω	0Ω	28Ω	17Ω	†600Ω	†600Ω	68Ω		
V5A	19T8	Inf.	33KΩ	Inf.	17Ω	0Ω	800KΩ	0Ω	4.7 Meg.	470KΩ
† V5B	19T8	1 Meg.	33KΩ	1 Meg.	17Ω	0Ω	1.5 Meg.	0Ω	4.7 Meg.	470KΩ
V6	50C5	150Ω	470KΩ	115Ω	65Ω	470KΩ	†400Ω	†300Ω		

† MEASURED FROM OUTPUT OF M1.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	12BA6	12BA6	7BK	
V2	Converter	12BA7	12BA7	8CT	
V3	1st IF Amp.	12BA6	12BA6	7BK	
V4	2nd FM IF Amp.	12BA6	12BA6	7BK	
V5	DET.-AVC-AF	19T8	19T8	9E	
V6	Power Output	50C5	50C5	7CV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	23B690539	AF888D	UP44415		EL-340	■ Filter
B	50	150						▲ Filter
C	50	150						Filter
C2	3	50	21K690543	PRS150/4	BR415		TVA-13	Stabilizing Cap.
C3	100		21B77286	1468-0001	5W5T1	GP1K-100	1FM-31	FM Line Ant. Coupling
C4	.01	400	889809	P488-01	GT4S1	GP2-335-01	TM-11	FM Ant. Isolation
C5	.05	400	8A470606	P488-05	GT4S5		TM-15	AVC Filter
C6	50		21K77373	1468-00005	5W5Q5	GP1K-50	1FM-45	RF Cathode Bypass
C7	500		21K481377	1468-0005	5W5T1	GP2K-500	1FM-35	RF Decoupling
C8	.05	200	889821	P288-05	GT2S5		TM-15	RF Decoupling
C9	100		21B77286	1468-0001	5W5T1	GP1K-100	1FM-31	RF Coupling
C10	25		21K28816	1469-000025	5R5Q25	NPOL-25	MS-425	Fixed Trimmer
C11	25		21K28816	1468-000025	5W5Q25	GP1K-25	MS-425	Osc. Grid Cap.
C12	25		21K28816	1468-000025	5W5Q25	GP1K-25	MS-425	Osc. Feedback
C13	85		21B690688					Fixed Trimme.·
C14	.01	400	889809	P488-01	GT4S1	GP2-335-01	TM-11	Conv. Decoupling
C15	100		21B77286	1468-0001	5W5T1	GP1K-100	1FM-31	Conv. Decoupling
C16	.01	100	889801	P488-01	GT2S1	GP2-335-01	TM-11	AVC Filter
C17	1000		21K478410	1468-001	IW5D1	GP2L-001	1FM-21	RF Fil. Bypass
C18	1000		21K478410	1468-001	IW5D1	GP2L-001	1FM-21	Conv. Fil. Bypass
C19	.002	400	889824	P488-002	GT6D2	GP2M-002	TM-22	1st IF Decoupling
C20	5000		21A470789	1467-005	ID5D5	811-005	29C1	1st IF Fil. Bypass
C21	5000		21A470789	1467-005	ID5D5	811-005	29C1	1st IF Fil. Bypass
C22A	100		*	1468-0001	5W5T1	GP1K-100	1FM-31	Diode RF Filter
B	100			1468-0001	5W5T1	GP1K-100	1FM-31	Diode RF Filter
C23	5000		21A470789	1467-005	ID5D5	811-005	29C1	RF Bypass
C24	.002	400	889824	P488-002	GT6D2	GP2M-002	TM-22	2nd IF Decoupling
C25	1000		21K478410	1468-001	IW5D1	GP2L-001	1FM-21	2nd IF Cath. Bypass
C26	250		21K77375	1468-00025	5W5T25	GP2K-250	1FM-325	Diode Load Cap. See Note 1
C27	250		21K77375	1468-00025	5W5T25	GP2K-250	1FM-325	Diode Load Cap. See Note 1
C28	1000		21K478410	1468-001	IW5D1	GP2L-001	1FM-21	De-emphasis
C29	.005	100	8A24966	P688-005	GT6D5	GP2M-005	TM-25	Audio Coupling
C30	250		21K77375	1468-00025	5W5T25	GP2K-250	1FM-325	AF Plate Bypass
C31	.005	100	8A24966	P688-005	GT6D5	GP2M-005	TM-25	Audio Coupling
C32	.05	200	889821	P288-05	GT2S5		TM-15	Tone Compensation
C33	.02	400	889802	P488-02	GT4S2		TM-12	Output Plate Bypass
C34	.25	100	889810	P488-25	GT2P25		68P19	AF Feedback
C35	.05	400	8K471635	P488-05	GT4S5		TM-15	Line Filter

* Items C22A, C22B and R13 are combined into one unit, obtainable under MFGR'S Part No. 21A473040.
Note 1. When either item C26 or C27 are replaced, replace both with capacitors of equal value.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	18A690549	Q13-137 #		Volume control
B	Switch		Not Req.	76-1		Attach to R1A per instructions

It is not necessary to duplicate lock ring groove of original shaft, as the knobs will retain the tone switch in position.

SET 85
FOLDER 9

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

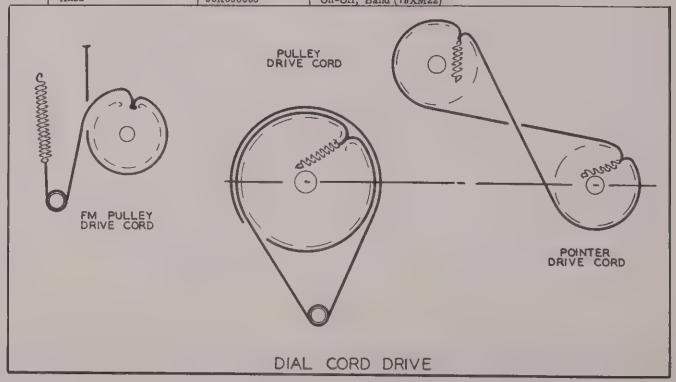
ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: MEISSNER PART No.
L8	FM 1st IF	2Ω	.9Ω	24B690540	
L9	AM 1st IF	14Ω	1Ω	24B482863	
L10	FM 2nd IF	5Ω	.9Ω	24B690541	
L11	AM 2nd IF	14Ω	1Ω	24B482865	16-6678
L12	Ratio Det. Transformer	2Ω	0Ω	24B690542	
L13	Fil. Choke	2.5Ω		24K780128	
L14	Fil. Choke	2.5Ω		24K780128	
L15	Line Choke	2.1Ω		24B580540	
L16	Line Choke	2.1Ω		24B580540	

SELENIUM RECTIFIER

ITEM No.	RATING: CURRENT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: SYLVANIA PART No.	NOTES
M1	.100A	48B482807		

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Switch	40B690538	Band
M3	Switch	40A690546	Tone
M4	2 Gang Var. Cap.	19B690747	(25-468MMF, 38-214MMF)
	Cabinet	16E690503	Model 79XM21
	Cabinet	16K691189	Model 79XM22
	Dial Pointer	52A690553	
	Knob	36K690586	Tone, Tuning (79XM21)
	Knob	36K691190	Tone, Tuning (79XM22)
	Knob	36K690585	On-Off, Band (79XM21)
	Knob	36K690668	On-Off, Band (79XM22)



PHOTOFACT* Folder

OLYMPIC MODELS
TV-947, TV-949, TV-950

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MODEL TV-947

OLYMPIC MODELS
TV-947, TV-949, TV-950

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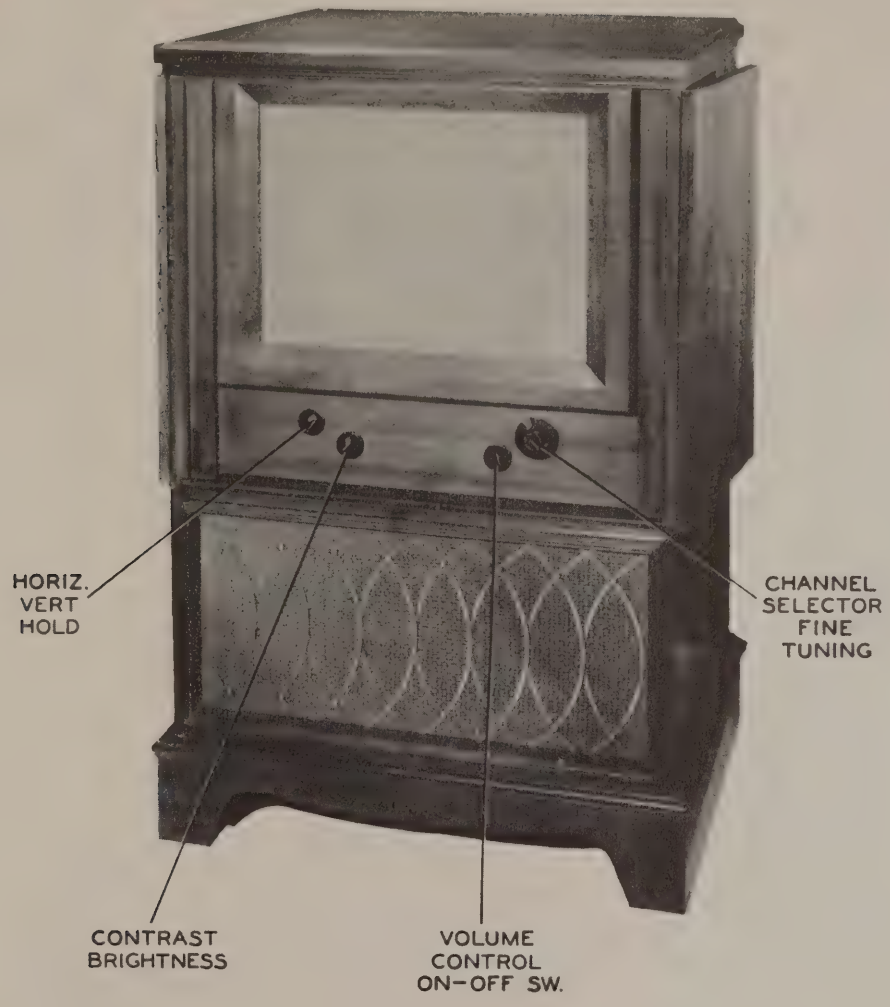

OLYMPIC
MODELS TV-947, TV-949, TV-950

OLYMPIC MODEL TV-947

TRADE NAME	Olympic Models TV-947, TV-949, TV-950
MANUFACTURER	Olympic Radio and Television Corp., 3101-19 38th SAve., Long Island City, New York
TYPE SET	Television Receiver
TUBES	Twenty Two
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—	Channels 2 thru 13
RATING:	1.93 Amp. at 117 Volts AC

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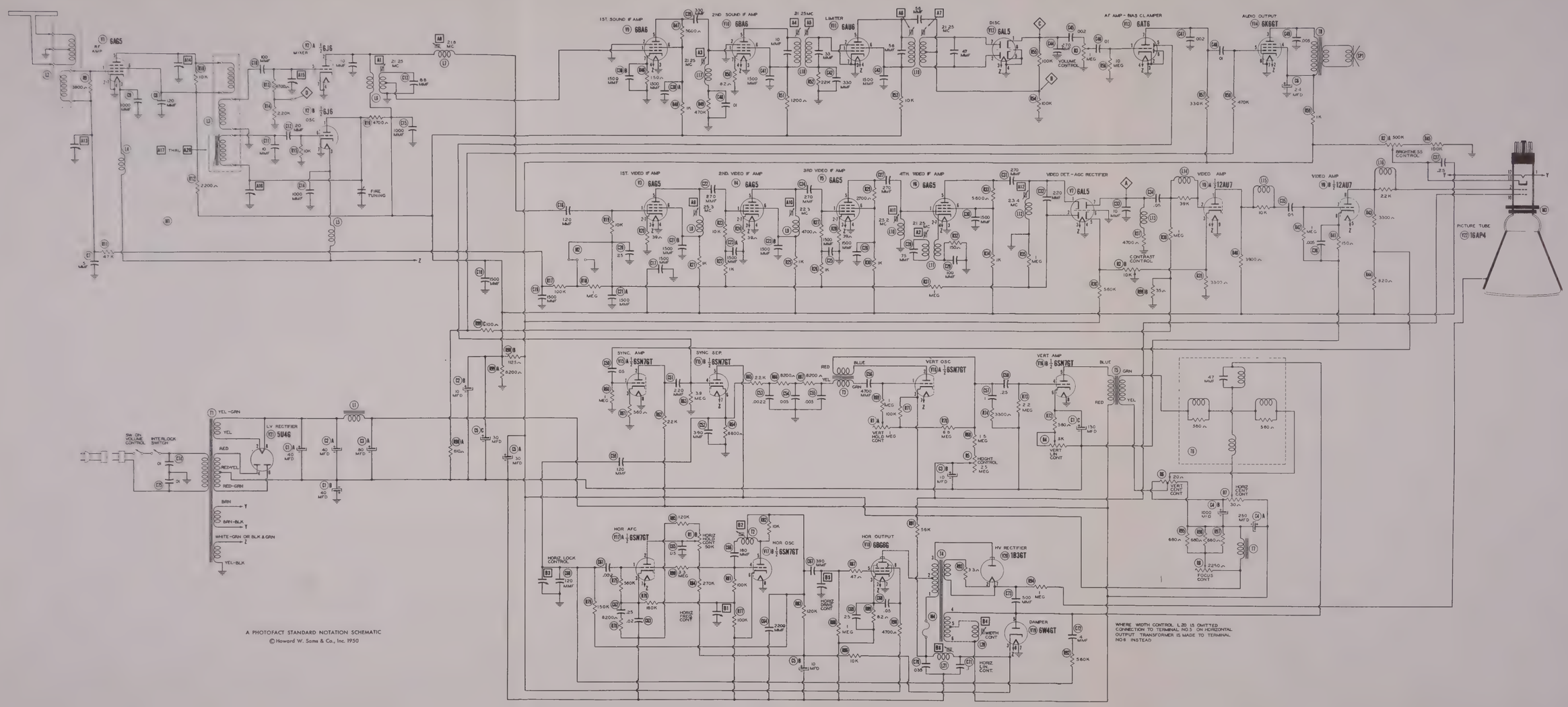
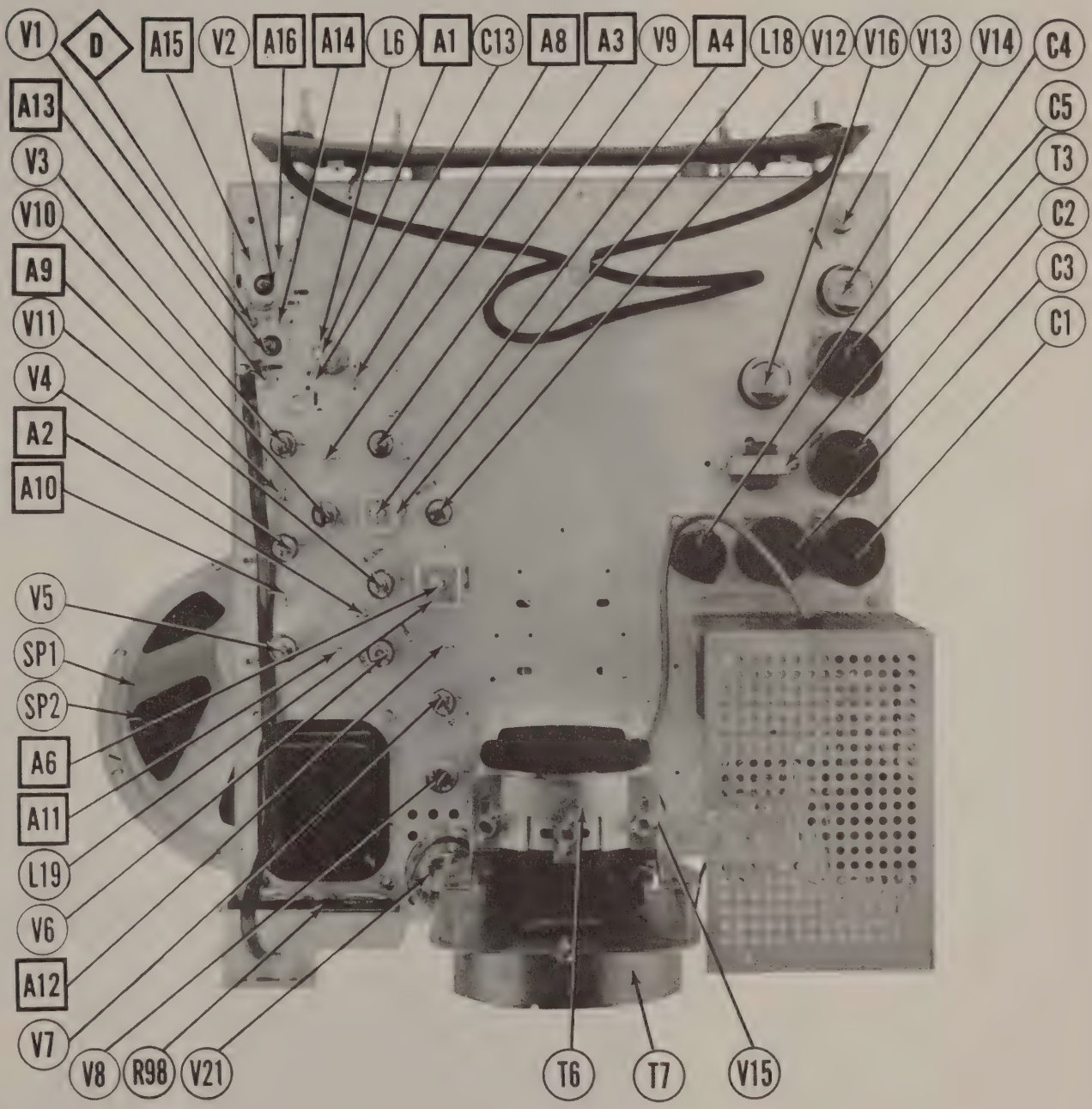
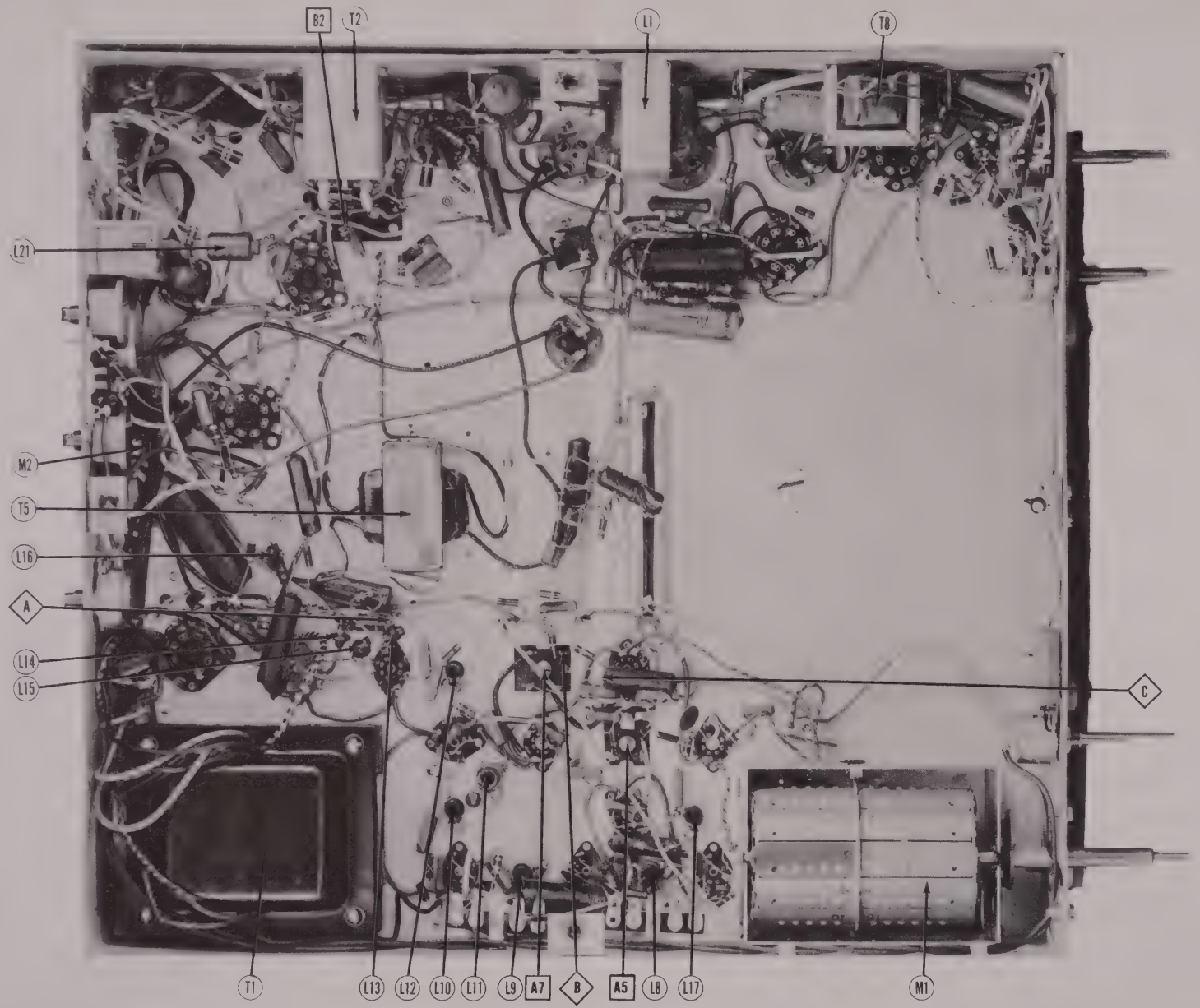


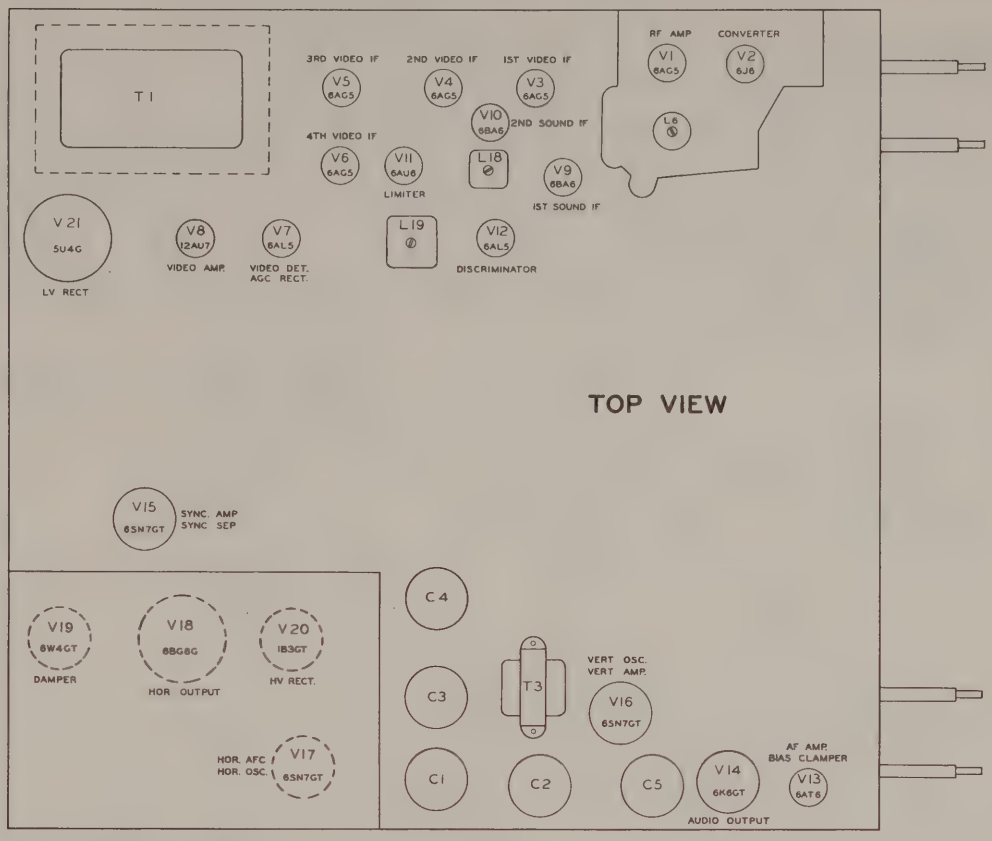
OLYMPIC
MODELS TV-947, TV-949, TV-950

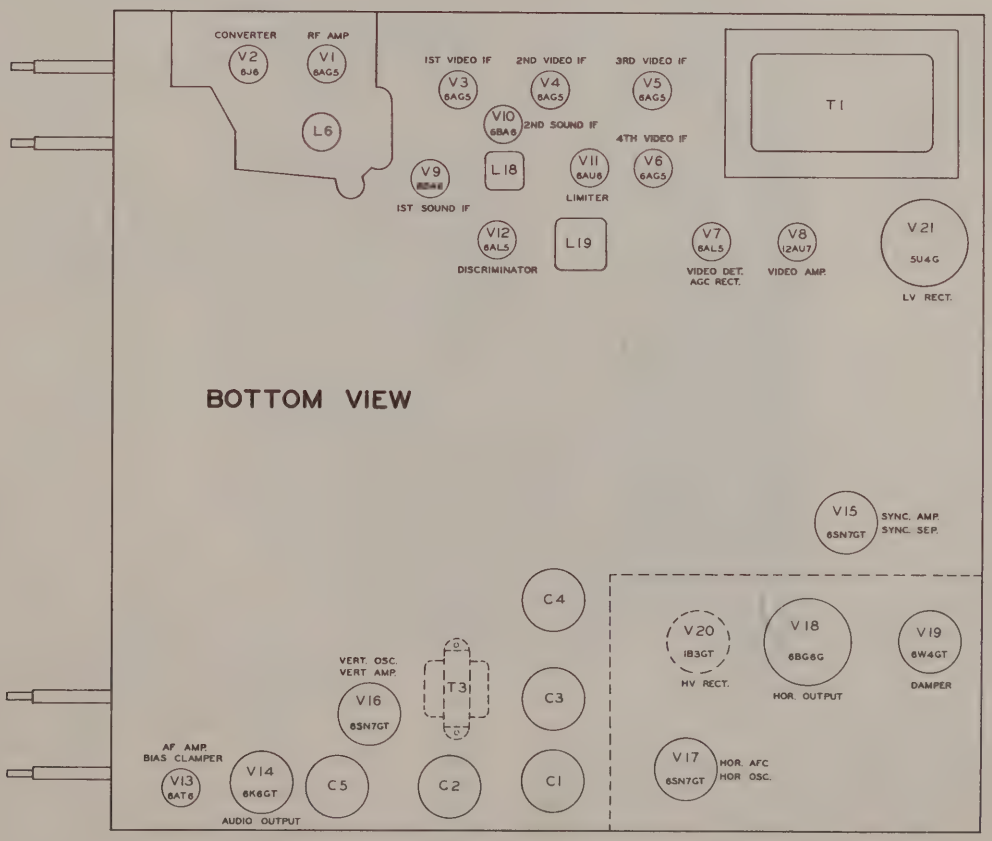


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If receiver is aligned with the picture tube removed, remove the horizontal oscillator tube V17 (6SN7GT) to eliminate the high voltage shock hazard.
The alignment procedure which follows is given in order which should be followed when complete alignment is performed.
Set sensitivity switch to "LOCAL".

VIDEO IF TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.25MC (Very Accurately)	9 (If unused locally)	DC Probe to Point (A) Common to chassis.	A1, A2	Adjust for minimum deflection.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
2.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.25MC (Very Accurately)	9 (If unused locally)	DC Probe to Point (B) Common to chassis.	A3, A4, A5, A6	Adjust for maximum deflection. Attenuate signal generator to maintain a 2 volt VTVM reading.
3.		"	"	"	DC Probe to Point (C) Common to chassis.	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat the adjustments of A6 and A7.

VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.8MC	9 (If unused locally)	DC Probe to Point (A) Common to chassis.	A8	Adjust for maximum deflection.
5.		"	25.3MC	"	"	A9	"
6.		"	22.3MC	"	"	A10	"
7.		"	25.2MC	"	"	A11	"
8.		"	23.4MC	"	"	A12	"

VIDEO IF RESPONSE CHECK

Connect a 1 1/2 volt bias battery-negative to pin 2 of V7, positive to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	25MC (10MC Sweep)	21.25MC 22.25MC 25.75MC	9	Vert. Amp. to Point (A) Low side to chassis.		Check response curve to see that it is similar to Fig 1. If slight retouching is necessary to reposition markers, adjust A1 and A2 until 21.25MC marker disappears. Adjust A9 and A11 to position the 25.75MC marker. Adjust A8 and A10 to position the 22.25MC marker. A12 will give the curve a flat top. Recheck the position of the 25.75 MC marker. Remove bias battery.

RF AMP. ALIGNMENT (TUNER CL-1677)

Connect 1 1/2 volt bias battery as used in video IF alignment. Negative to pin 2 of V8, positive to chassis.
Set the fine tuning control to its midposition. This particular tuner incorporates one of two types of fine tuning control. Those tuners having the fine tuning bakelite disc located in back of the oscillator slug and adjustment hole, the midpoint of its range is when the fine tuning shaft is turned completely counter-clockwise.
Those models having the fine tuning bakelite disc located in front of the oscillator slug adjustment hole, the midpoint of the fine tuning range is attained when the bakelite disc faces directly downward.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 125Ω carbon res.	Across antenna terminals with 125Ω resistor in each generator lead.	207MC (10MC Sweep)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point (D) Low side to chassis.	A13, A14 A15	Adjust for flat topped response curve as per Fig 2. with markers appearing not less than 70% of maximum amplitude of the curve.
11.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check response on all channels. A13 and A14 and A15 may be adjusted slightly to obtain optimum response on all channels.
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			177MC (10MC SWP)	175.25MC 179.75MC	7			
			85MC (10MC SWP)	83.25MC 87.75MC	6			
			79MC (10MC SWP)	77.25MC 81.75MC	5			
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			

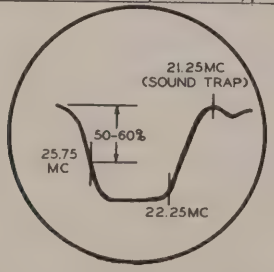


FIG. 1

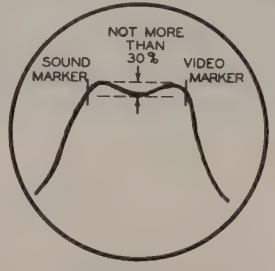


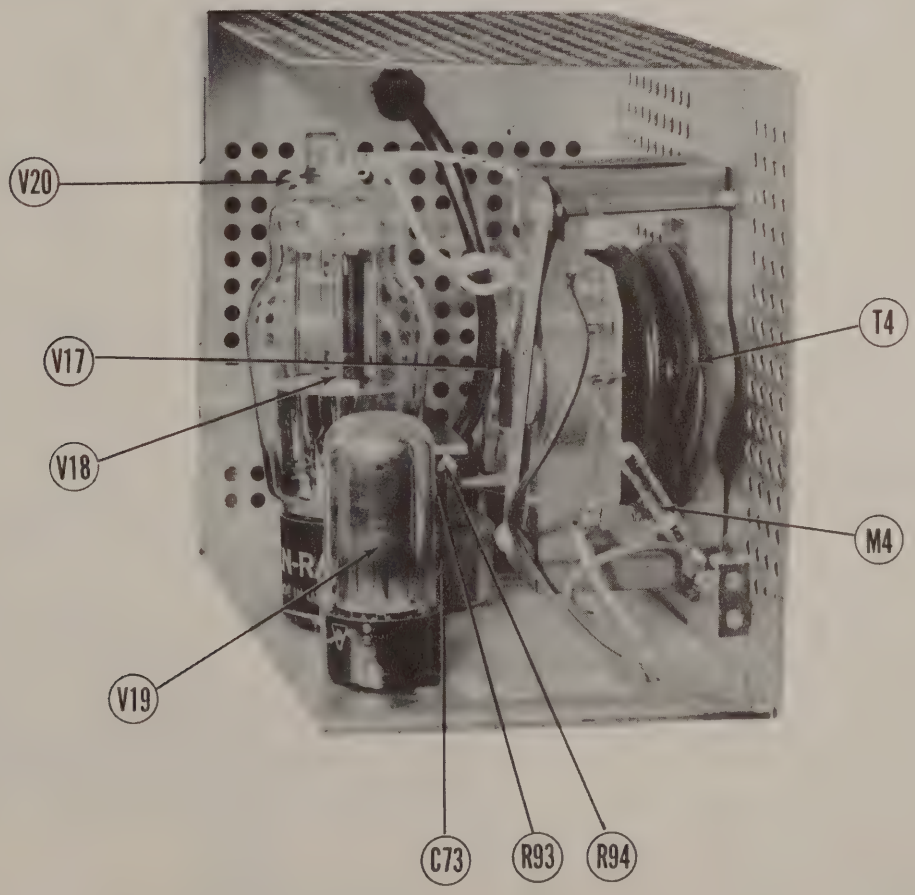
FIG. 2

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT (TUNER CL-1677)

Complete alignment of the oscillator circuit may not be necessary. This is determined by checking to see that a zero reading is obtained for each channel when the fine tuning control is tuned through the midpoint of its range. (Connect signal generator and VTVM as in steps 12 and 13. Sound carrier frequencies are listed in step 13.) If the majority of the channels seem to need oscillator alignment, this sometimes may be done in one operation-step 12-by adjusting A16. It should be noted that this is an all-channel adjustment and should not be adjusted for individual channels. If step 12 fails to align the oscillator circuits sufficiently, it will be necessary to adjust the oscillator coil slugs, These are accessible one channel at a time. Set the fine tuning control to the midposition of its range. (See RF Amp. Alignment Tuner CL-1677 for this setting.)

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	Direct	High side to one antenna terminal. Low side to chassis.	209.75MC	12	DC Probe to Point Ⓒ Common to chassis.	A16	Adjust for zero reading between positive and negative peaks with fine tuning control at its midpoint. Rotate channel selector switch and adjust individual channels outlined in step 13. Then repeat step 12.
13.	Direct	"	215.75MC	13	"	A17	"
			209.75MC	12		A18	
			203.75MC	11		A19	
			197.75MC	10		A20	
			191.75MC	9		A21	
			185.75MC	8		A22	
			179.75MC	7		A23	
			87.75MC	6		A24	
			81.75MC	5		A25	
			71.75MC	4		A26	
			65.75MC	3		A27	
			59.75MC	2		A28	



HIGH VOLTAGE SUPPLY

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.5VDC	0V.	6.3VAC	0V.	90VDC	90VDC	0V.		
V 2	6J6	60VDC	110VDC	6.3VAC	0V.	1 VDC	§-2.4VDC	0V.		
V 3	6AG5	-2.5VDC	.2VDC	6.3VAC	0V.	107VDC	107VDC	.2VDC		
V 4	6AG5	-.5VDC	.2VDC	6.3VAC	0V.	107VDC	107VDC	.2VDC		
V 5	6AG5	-.5VDC	.2VDC	6.3VAC	0V.	100VDC	107VDC	.2VDC		
V 6	6AG5	0V.	1 VDC	0V.	6.3VAC	70VDC	105VDC	1 VDC		
V 7	6AL5	0V.	-1.3VDC	6.3VAC	0V.	0V.	0V.	-1 VDC		
V 8	12AU7	107VDC	-.8VDC	2.2VDC	6.3VAC	6.3VAC	¶135VDC	¶0V.	¶1.9VDC	0V.
V 9	6BA6	0V.	0V.	0V.	6.3VAC	55VDC	100VDC	1.5VDC		
V 10	6BA6	0V.	0V.	0V.	6.3VAC	92VDC	92VDC	1.2VDC		
V 11	6AU6	-.4VDC	0V.	0V.	6.3VAC	57VDC	57VDC	0V.		
V 12	6AL5	0V.	-.3VDC	6.3VAC	0V.	0V.	0V.	-.3VDC		
V 13	6AT6	-.5VDC	0V.	0V.	6.3VAC	-.6VDC	0V.	60VDC		
V 14	6K6GT	0V.	6.3VAC	183VDC	190VDC	-5.4VDC	-16VDC	0V.	0V.	
V 15	6SN7GT	0V.	125VDC	3.1VDC	-.6VDC	212VDC	7.8VDC	6.3VAC	0V.	
V 16	6SN7GT	¶-7VDC	¶70VDC ¶145VDC	¶0V.	¶0V.	¶325VDC	¶ 5VDC ¶18VDC	6.3VAC	0V.	
V 17	6SN7GT	¶-1.4VDC	¶95VDC	¶-1.2VDC	¶-36VDC	¶135VDC	¶0V.	6.3VAC	0V.	
V 18	6BG6G	0V.	6.3VAC	¶111VDC	0V.	¶0V.	¶0V.	0V.	¶250VDC	TOP CAP *
V 19	6W4GT	-85VDC	280VDC	300VDC	0V.	245VDC	0V.	6.3VAC	0V.	
V 20	1B3GT	* DO NOT MEASURE								
V 21	5U4G	0V.	260VDC	0V.	360VAC	0V.	360VAC	0V.	260VDC	
V 22	16AP4	♦110VDC	55VDC	PIN 10 290VDC	PIN 11 210VDC	PIN 12 ♦110VDC				

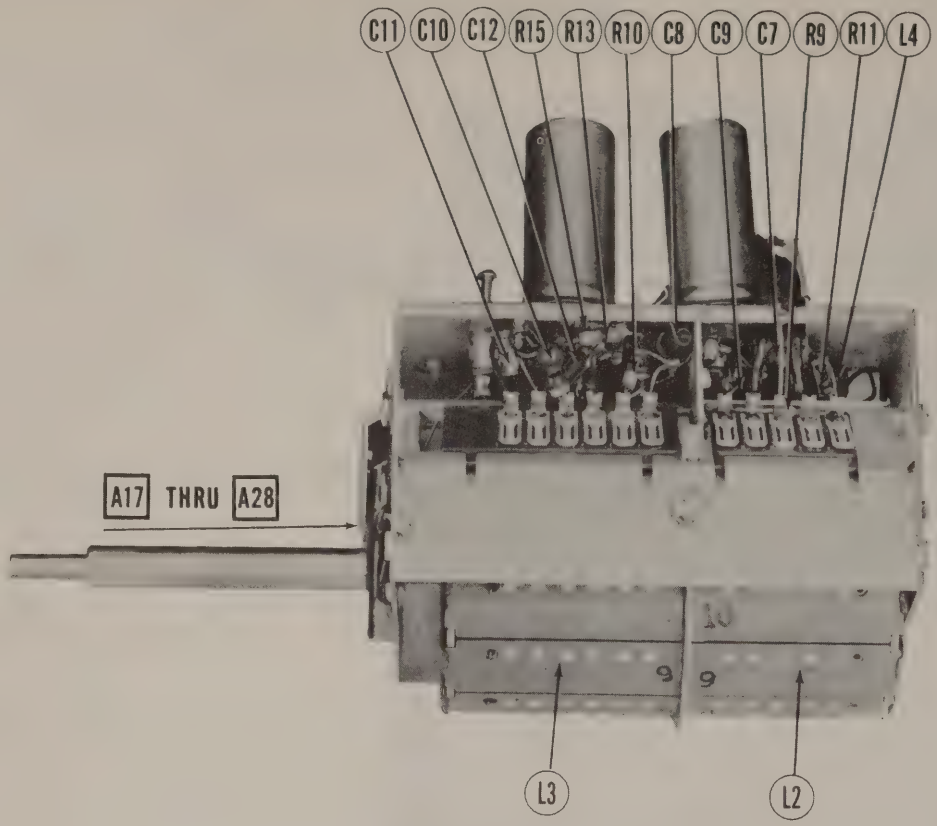
§ TAKEN WITH VACUUM TUBE VOLTMETER.
¶ MEASURED FROM PIN 3 OF V16.
♦ 6.3VAC MEASURED ACROSS FILAMENTS:

RESISTANCE READINGS

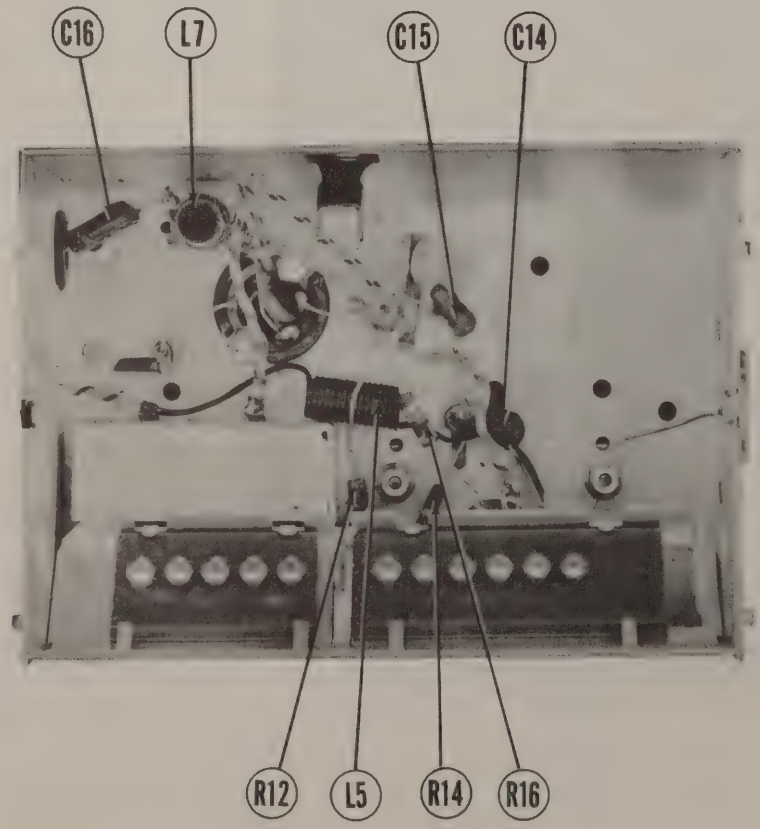
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	2 Meg.	0Ω	.1Ω	0Ω	†3.5KΩ	†3.5KΩ	0Ω		
V 2	6J6	†6KΩ	†1.4KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AG5	2 Meg.	39Ω	.1Ω	0Ω	†2.5KΩ	†2.5KΩ	39Ω		
V 4	6AG5	2 Meg.	39Ω	.1Ω	0Ω	†2.5KΩ	†2.5KΩ	39Ω		
V 5	6AG5	2 Meg.	39Ω	.1Ω	0Ω	†5KΩ	†2.5KΩ	39Ω		
V 6	6AG5	.1Ω	150Ω	0Ω	.1Ω	†8KΩ	†2.5KΩ	150Ω		
V 7	6AL5	.1Ω	1 Meg.	.1Ω	0Ω	.3Ω	0Ω	4.7KΩ		
V 8	12AU7	†5.5KΩ	1 Meg.	3KΩ	.1Ω	.1Ω	†5.5KΩ	1 Meg.	¶150Ω	0Ω
V 9	6BA6	0Ω	0Ω	0Ω	.1Ω	†8KΩ	†2.5KΩ	150Ω		
V 10	6BA6	470KΩ	0Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	82Ω		
V 11	6AU6	22KΩ	0Ω	0Ω	.1Ω	†11.5KΩ	†11.5KΩ	0Ω		
V 12	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ		
V 13	6AT6	10 Meg.	0Ω	0Ω	.1Ω	3.9 Meg.	0Ω	†330 KΩ		
V 14	6K6GT	Inf.	.1Ω	†1.4KΩ	†1.3KΩ	470KΩ	135Ω	0Ω	0Ω	
V 15	6SN7GT	1 Meg.	†22KΩ	560Ω	3.9 Meg.	†380Ω	6.8KΩ	.1Ω	0Ω	
V 16	6SN7GT	2 Meg.	# 3 Meg. #1.5 Meg.	¶0Ω	2.2 Meg.	†800Ω	¶5.5KΩ ¶560Ω	.1Ω	0Ω	
V 17	6SN7GT	800KΩ	#250KΩ	280KΩ	200KΩ	#130KΩ	¶0Ω	.1Ω	0Ω	
V 18	6BG6G	Inf.	.1Ω	¶82Ω	Inf.	1 Meg.	1 Meg.	0Ω	†5KΩ	TOP CAP #125Ω
V 19	6W4GT	750Ω	90KΩ	100KΩ	Inf.	†68Ω	Inf.	.1Ω	0Ω	
V 20	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #320Ω
V 21	5U4G	Inf.	9.5KΩ	Inf.	72Ω	Inf.	75Ω	Inf.	9.5KΩ	
V 22	16AP4	†1.4KΩ	†5.5KΩ	PIN 10 #56KΩ	PIN 11 †380Ω	PIN 12 †1.4KΩ				

† MEASURED FROM PIN 8 OF V21.
# MEASURED FROM PIN 3 OF V19.
¶ MEASURED FROM PIN 3 OF V16.
NOTE: SENSITIVITY SWITCH SET IN LOCAL POSITION FOR THESE MEASUREMENTS

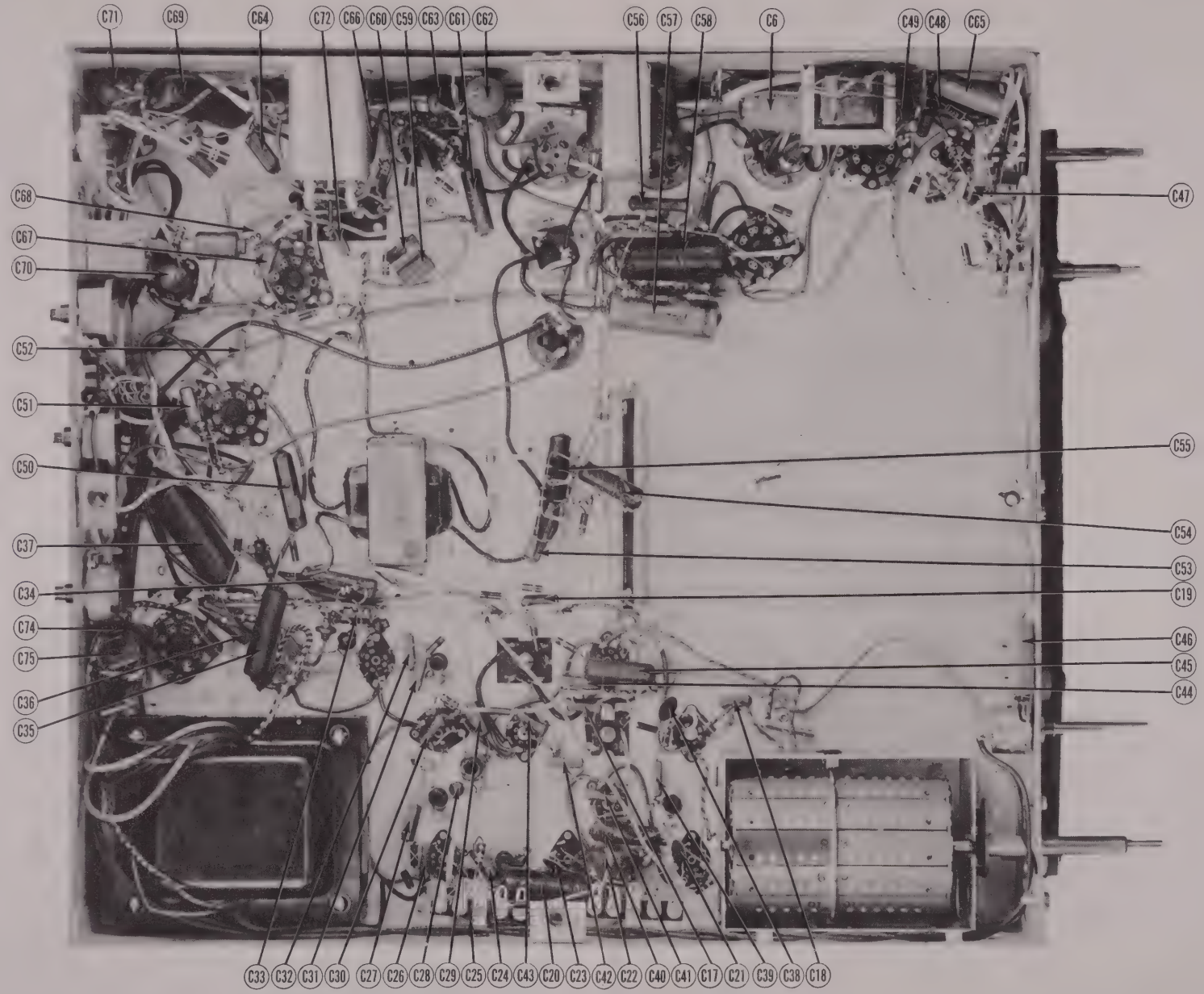
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



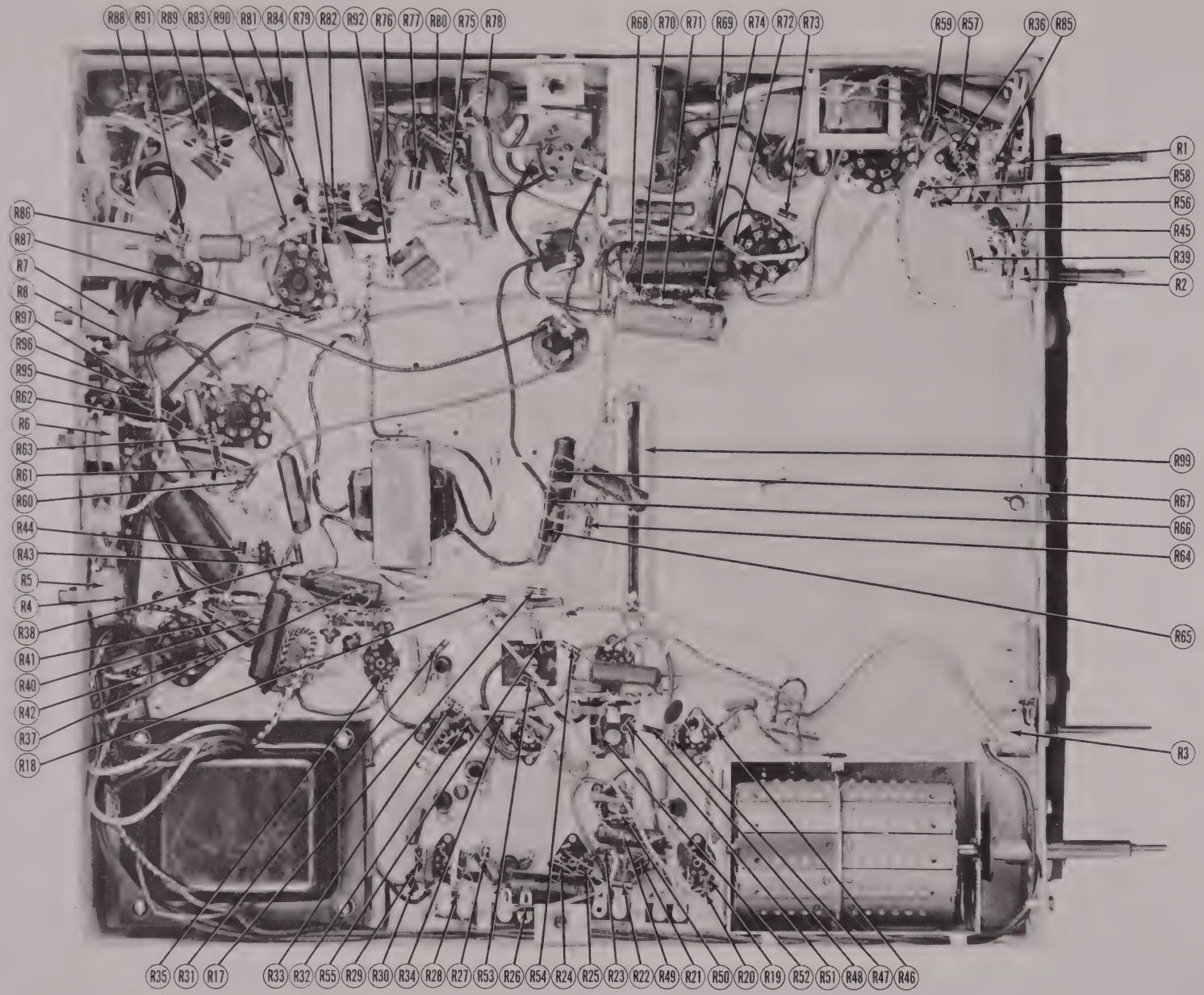
RF TUNER-RIGHT SIDE



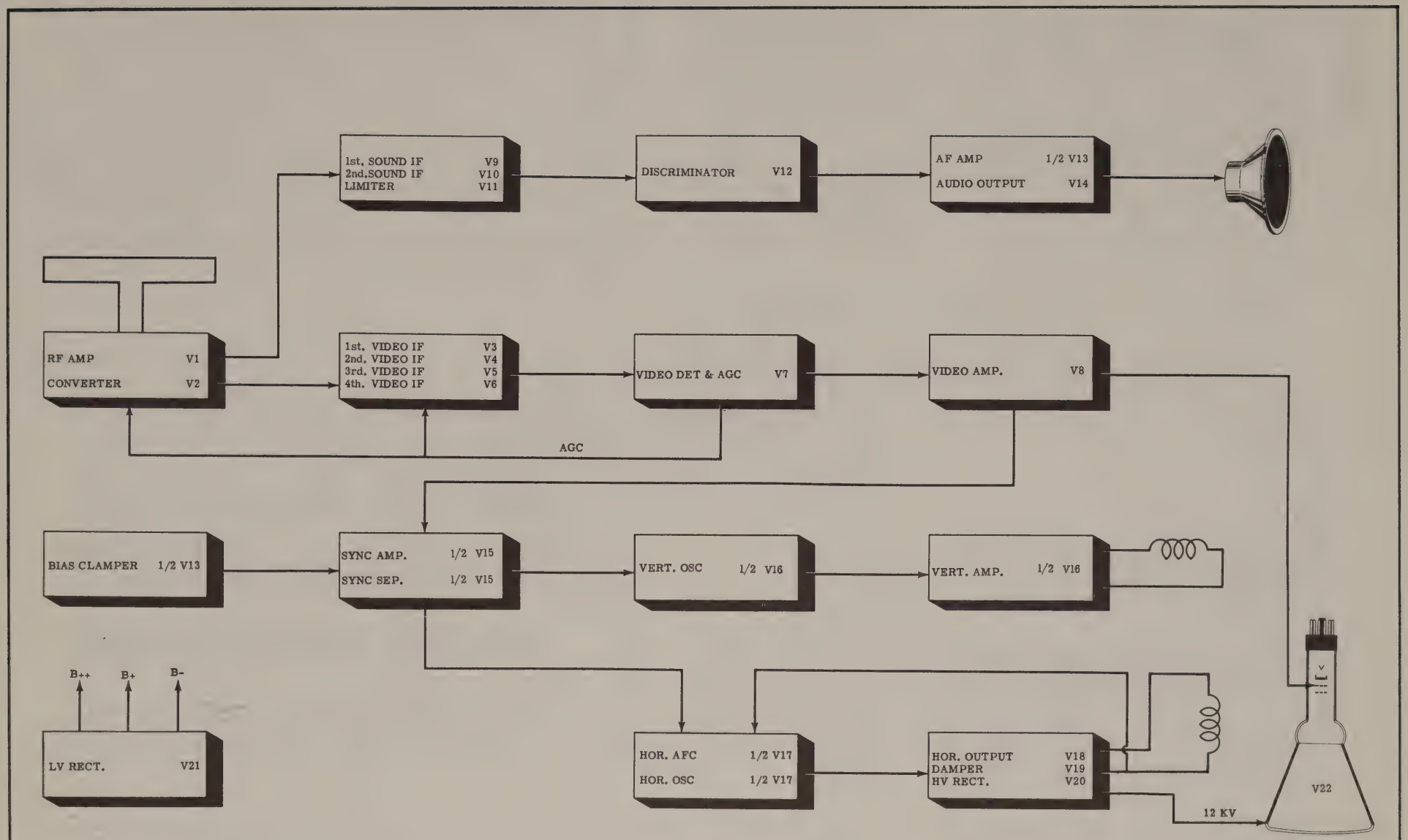
RF TUNER-BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF	6AG5	6AG5	7BD	
V4	2nd Video IF	6AG5	6AG5	7BD	
V5	3rd Video IF	6AG5	6AG5	7BD	
V6	4th Video IF	6AG5	6AG5	7BD	
V7	Video Det.-AGC Rectifier	6AL5	6AL5	6BT	
V8	Video Amp.	12AU7	12AU7	9A	
V9	1st Sound IF	6BA6	6BA6	7BK	
V10	2nd Sound IF	6BA6	6BA6	7BK	
V11	Limiter	6AU6	6AU6	7BK	
V12	Disc	6AL5	6AL5	6BT	
V13	AF Amp.-Bias Clamper	6AT6	6AT6	7BT	
V14	Audio Output	6K6GT	6K6GT	7S	
V15	Sync. Amp.-Sync. Sep.	6SN7GT	6SN7GT	8BD	
V16	Vert. Osc.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V17	Hor. AFC-Hor. Osc.	6SN7GT	6SN7GT	8BD	
V18	Hor. Output	6BG6G	6BG6G	5BT	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	
V22	Picture Tube	16AP4	16AP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	450	CO-1494	AFH8J8D26B	UP9CJ887		TVL-57	▲ Filter
B	40	150						■ Filter
C	130	50						▲ Vert. Output Cath. Bypass
C2A	40	450	CO-1497	AFH8J2H	UP7BJ920		TVL-69	▲ Filter
B	10	350						▲ Filter
C3A	80	450	CO-1495	AFH162J	UP9BJ857		TVL-47	▲ Filter
B	10	450						▲ Decoupling
C4A	250	10	CO-1498	PRS10/250	UP7BJ808		TVL-12	▲ Hor. Cent. Cont. Bypass
B	1000	6		PRS6/1000				▲ Vert. Cent. Cont. Bypass
C5A	30	400	CO-1496	AFH2JG6G	UP8CJ898		TVL-56	■ Filter
B	10	450						▲ Decoupling
C	30	300						▲ Filter
C6	24	300		PRS350/24	BR2035		TVA-23	Output Decoupling
C7	5					NPOK-5		Fixed Trimmer
C8	120					GP2K-120		RF Decoupling
C9	1000					GP2L-001	29C4	RF Filament Bypass
C10	100					GP1K-100		RF Coupling
C11	10					NPOK-10		Fixed Trimmer
C12	20					NPOK-20		Osc. Grid Cap. Fixed Trimmer
C13	68							
C14	1000					GP2L-001	29C4	Conv. Filament Bypass
C15	1000					GP2L-001	1FM-21	RF Bypass
C16	120	500		1468-00015	5W5T15	GP2K-120	1FM-315	IF Coupling
C17	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	RF Bypass
C18	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	RF Bypass
C19	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	AGC Filter
C20	.25	400		P488-25	GT4P25		TC-2	AGC Filter
C21A	1500			1467-0015	1W5D15	GP2L-0015	29C6	AGC Filter *
B	1500			1467-0015	1W5D15	GP2L-0015		1st V. IF Decoupling
C22	270	1000		1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C23A	1500			1467-0015	1W5D15	GP2L-0015	29C6	AGC Filter
B	1500			1467-0015	1W5D15	GP2L-0015		2nd V. IF Decoupling
C24	270	1000		1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C25	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	AGC Filter
C26	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoupling
C27	270	1000		1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C28	75			1489-000075		NPOM-75		Fixed Trimmer
C29	100	500		1468-0001	5W5T1	GP1K-100	1FM-31	4th V. IF Cath. Bypass
C30	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	4th V. IF Decoupling
C31	270	500		1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C32	220	500		1468-00025	5W5T25	GP2K-220	1FM-325	IF Coupling
C33	10	500		1468-00001	5W5Q1	GP1K-10	MS-51	V. Diode Filter
C34	.05	400		P488-05	GT4S5		TM-15	Video Coupling
C35	.05	400		P488-05	GT4S5		TM-15	Video Coupling
C36	.005	600		P688-005	GT6D5	GP2M-005	TM-25	V. Amp. Cathode Bypass
C37	.25	400		P488-25	GT4P25		TC-2	Pic. Tube Cath. Dec.
C38A	1500			1467-0015	1W5D15	GP2L-0015	29C6	1st S. IF Decoupling
B	1500			1467-0015	1W5D15	GP2L-0015		1st S. IF Cath. Bypass
C39	330	500		1468-00035	5W5T3	GP2K-330	1FM-335	S. IF Coupling
C40	.01	600		P688-01	GT6S1	GP2-335-01	TM-11	2nd S. IF Grid Filter
C41	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	2nd S. IF Decoupling
C42	330	500		1468-00035	5W5T3	GP2K-330	1FM-335	Limiter Grid Filter
C43	1500			1467-0015	1W5D15	GP2L-0015	1FM-215	Limiter Decoupling
C44	270	500		1468-0003	5W5T3	GP2K-270	1FM-325	RF Bypass
C45	.002	600		P688-002	GT6D3	GP2M-002	TM-22	Audio Coupling
C46	.01	600		P688-01	GT6S1	GP2-335-01	TM-11	Audio Coupling
C47	.002	600		P688-002	GT6D2	GP2M-002	TM-22	De-emphasis
C48	.01	600		P688-01	GT6S1	GP2-335-01	TM-11	Audio Coupling
C49	.005	600		P688-005	GT6D5	GP2M-005	TM-25	Output Plate Bypass
C50	.05	400		P488-05	GT4S5		TM-15	Sync. Coupling
C51	220	500		1468-00025	5W5T25	GP2K-220	1FM-325	Sync. Coupling
C52	390	1000		1468-0004	5W5T4	GP2K-390	1FM-34	Sync. Sep. Cathode Bypass

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C53	.0022	600		P688-0022	GT6D2	GP2M-0022	TM-22	Integrator Net.
C54	.005	600		P688-005	GT6D5	GP2M-005	TM-25	Integrator Net.
C55	.005	600		P688-005	GT6D5	GP2M-005	TM-25	Integrator Net.
C56	4700			1467-005	1D5D5	GP2M-0047	1FM-25	Vert. Osc. Grid Cap.
C57	.1	1000		1084-1	TVC10P1		PX-1	Vert. Discharge
C58	.25	400		P488-25	GT4P25		TC-2	Vert. Sweep Coupling
C59	120	1000						Hor. Sync. Coupling
C60	120	1000						Voltage Divider
C61	.002	600		P688-002	GT6D2	GP2M-002	TM-22	Hor. Sync. Coupling
C62	.25	400		P488-25	GT4P25		TC-2	AFC Filter
C63	.02	400		P488-02	GT4S2		TM-12	AFC Filter
C64	220υ	500				GP2M-0022		Hor. Discharge
C65	.05	400		P488-05	GT4S5		TM-15	AFC Plate Bypass
C66	180	1000						Hor. Osc. Grid Cap.
C67	390	1000		1468-0004	5W5T4	GP2K-390	1FM-34	Hor. Sweep Coupling
C68	.05	600		P688-05	GT6S5		TM-15	Hor. Output Screen Bypass
C69	.25	400		P488-25	GT4P25		TC-2	Hor. Output Cath. Bypass
C70	.035	1000		P1088-033				Damper Filter
C71	.1	1000		1084-1	TVC10P1		PX-11	Damper Filter
C72	4	1500						Hor. Feedback
C73	500	15000				410-500		HV Filter
C74	.01	600		P688-01	GT6S1		TM-11	Line Filter
C75	.01	600		P688-01	GT6S1		TM-11	Line Filter

* Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	PT-1479	B11-137 §	1479	Vert. hold control, front
B	50KΩ	½		B11-123 §		Horiz. hold control, rear
C	Shaft End			E187 §		Attach per instructions in "Concentrikit".
R2A	500KΩ	½	PT-1478	B11-133 §	1478	Brightness control, front
B	10KΩ	½		B11-116 §		Contrast control, rear
C	Shaft End			E187 §		Attach per instructions in "Concentrikit".
R3A	1 Meg.	½	PT-1477	Q13-137	M-63-Z	Volume control
B	Switch		Not Req.	76-1	SW-A	Attach to R3A per instructions
R4	5000Ω	½	PT-1480	Q11-114	M-19-S	Vert. linearity control
R5	2.5 Meg.	½	PT-1481	Q11-239	M-84-S	Height control
R6	20Ω	2	PT-1482	W-20X10	43-20CT	Vert. centering control, tapped at 10Ω-Wire Wound
R7	30Ω	2	PT-1483	W-30	43-30	Horiz. centering control, Wire Wound
R8	2250Ω	4	PT-1484		10-2500	Focus control, Wire Wound

§ Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	IRC PART No.	IDENTIFICATION CODES
R9	3900Ω			BTS-3900	RF Grid
R10	10KΩ				RF Coil Shunt
R11	47KΩ				AGC Network
R12	2200Ω			BTS-2200	RF Decoupling
R13	4700Ω				Conv. Grid
R14	220KΩ				Conv. Grid
R15	10KΩ				Osc. Grid
R16	4700Ω				Osc. Plate
R17	100KΩ 5%			BTS-100K-5%	AGC Network
R18	1 Meg. 20%			BTS-1 Meg.	AGC Network
R19	10KΩ 5%				1st Video IF Grid
R20	39Ω				1st Video IF Cathode
R21	1000Ω 20%			BTS-1000	1st Video IF Decoupling
R22	1000Ω 20%			BTS-1000	AGC Network
R23	10KΩ 5%				2nd Video IF Grid
R24	39Ω				2nd Video IF Cathode
R25	1000Ω 20%			BTS-1000	2nd Video IF Decoupling
R26	1000Ω 20%			BTS-1000	AGC Network
R27	4700Ω				3rd Video IF Grid
R28	39Ω				3rd Video IF Cathode
R29	2700Ω 5%			BTS-2700-5%	3rd Video IF Plate
R30	1000Ω 20%			BTS-1000	3rd Video IF Decoupling
R31	1 Meg. 20%			BTS-1 Meg.	AGC Network
R32	150Ω				4th Video IF Cathode
R33	5600Ω 5%				4th Video IF Plate
R34	1000Ω 20%			BTS-1000	4th Video IF Decoupling
R35	1 Meg. 20%			BTS-1 Meg.	AGC Rect. Diode Load
R36	560KΩ			BTS-560K	Voltage Divider
R37	4700Ω			BTS-4700	Video Det. Diode Load
R38	1 Meg. 20%			BTS-1 Meg.	Video Amp. Grid
R39	3300Ω 20%			BTS-3300	Video Amp. Cathode
R40	3900Ω 5%			BTS-3900-5%	Video Amp. Plate
R41	150Ω			BW-½-150	Video Amp. Cathode
R42	1 Meg. 20%			BTS-1 Meg.	Video Amp. Grid
R43	3300Ω			BTA-3300	Video Amp. Plate
R44	820Ω			BTS-820	Video Amp. Plate
R45	100KΩ 20%			BTS-100K	Voltage Divider
R46	150Ω				1st Sound IF Cathode
R47	5600Ω				1st Sound IF Plate
R48	1000Ω 20%			BTS-1000	1st Sound IF Decoupling
R49	470KΩ 20%				2nd Sound IF Grid
R50	82Ω				2nd Sound IF Cathode
R51	1200Ω			BTS-1200	2nd Sound IF Decoupling
R52	22KΩ 20%				Limiter Grid
R53	10KΩ 5%				Limiter Decoupling
R54	100KΩ 5%			BTS-100K-5%	Disc. Diode Load

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	IRC PART No.	IDENTIFICATION CODES
R55	100KΩ 5%	½		BTS-100K-5%	Disc. Diode Load
R56	10 Meg. 20%	½		BTS-10 Meg.	AF Grid
R57	330KΩ	½		BTS-330K	AF Plate
R58	470KΩ 20%	½		BTS-470K	Output Grid
R59	1000Ω 20%	1		BW-1-1000	Filter
R60	1 Meg. 20%	½		BTS-1 Meg.	Sync. Amp. Grid
R61	560Ω	½		BTS-560	Sync. Amp. Cathode
R62	22KΩ	1		BTA-22K	Sync. Amp. Plate
R63	3.9 Meg.	½		BTS-3.9 Meg.	Sync. Sep. Grid
R64	6800Ω 20%	½		BTS-6800	Sync. Sep. Cathode
R65	22KΩ 20%	½		BTS-22K	Integrator
R66	8200Ω	½		BTS-8200	Integrator
R67	8200Ω	½		BTS-8200	Integrator
R68	1.5 Meg.	½		BTS-1.5 Meg.	Vert. Osc. Plate
R69	1 Meg. 5%	½		BTS-1 Meg.-5%	Vert. Osc. Grid
R70	6.8 Meg.	½		BTS-6.8 Meg.	Voltage Divider
R71	100KΩ 20%	½		BTS-100K	Voltage Divider
R72	560Ω	½		BTS-560	Vert. Output Cathode
R73	2.2 Meg. 20%	½		BTS-2.2 Meg.	Vert. Output Grid
R74	3300Ω 20%	½		BTS-3300	Vert. Peaking
R75	560KΩ 5%	½		BTS-560K-5%	Horiz. AFC Grid
R76	180KΩ	½		BTS-180K	Horiz. AFC Cathode
R77	100KΩ 5%	1		BTA-100K-5%	Horiz. AFC Cathode
R78	8200Ω	½		BTS-8200	Horiz. AFC Filter Network
R79	150KΩ	½		BTS-150K	Horiz. AFC Filter Network
R80	3.3 Meg. 5%	1		BTA-3.3 Meg.5%	Voltage Divider
R81	100KΩ 5%	1		BTA-100K-5%	Horiz. Osc. Grid
R82	10KΩ 5%	½		BTS-10K-5%	Horiz. Osc. Transformer Shunt
R83	120KΩ	1		BTA-120K	Horiz. Osc. Plate
R84	270KΩ	1		BTA-270K	Voltage Divider
R85	120KΩ	½		BTS-120K	Voltage Divider
R86	10KΩ 5%	½		BTS-10K-5%	Filter
R87	47Ω 20%	½			Parasitic Supp.
R88	1 Meg. 20%	½		BTS-1 Meg.	Horiz. Output Grid
R89	82Ω	1		BW-1-82	Horiz. Output Cathode
R90	4700Ω	1		BTA-4700	Horiz. Output Screen
R91	56KΩ	½		BTS-56K	Filter
R92	560KΩ	2		BTS-560K	Feedback Network
R93	3.3Ω	1			HV Rect. Filament-Wire Wound
R94	1 Meg. 20%	2			HV Filter
R95	680Ω	1		BTA-680	Focus Coil Shunt
R96	680Ω	1		BTA-680	Focus Coil Shunt
R97	680Ω	1		BTA-680	Focus Coil Shunt
R98A	610Ω	20			Bias Network-Wire Wound
B	1125Ω	20			Filter-Wire Wound
R99A	8200Ω	5		AB-8000	Bleeder-Wire Wound
B	35Ω	1		BW-1-33	Voltage Divider-Wire Wound
C	100Ω	2		BW-2-100	Bias Network-Wire Wound

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.
T1	117VAC at 1.93A	710VCT .265ADC	5VAC at 3A	6.3VAC at 9.2A	TR-1688	P-8153 # and P-5014 ∮	P-3059	TP-355
				SEC. 4				
				6.3VAC at .5A				

Drill new mounting holes.
∮ Mount filament transformer under chassis.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: OLYMPIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	105Ω Tap at 80Ω						Hor. Osc. Trans.
T3	180Ω	1000Ω	TR-1473	A-8111 †	A-3000 †	TBO-1 †	Vert. Block Osc. Trans.
T4	285Ω Tap at 88Ω	SEC. 1 10.6Ω Tap at .6Ω		A-8117		TFB-3	Hor. Output Trans.
		SEC. 2 0Ω					
T5	770Ω	8.2Ω	TR-1764	A-8115 # DY-1	A-3035 #	TSO-5 #	Vert. Output Trans.
T6A	10.8Ω						Hor. Deflection Coil
B	63Ω						Vert. Deflection Coil
T7	410Ω		CL-1842				Focus Coil

Drill new mounting holes.
† Drill one new mounting hole.

OLYMPIC
MODELS TV-947, TV-949, TV-950

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T8	6200Ω	3.6Ω	260Ω	.4Ω	TR-1506	A-8114	A-2931	RO-13	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			OLYMPIC PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-120 †		† Replace output transformer to match 6-8Ω voice coil.
SP1A	PM	3.6Ω	SK-1785 ①	MOD. P10-S	10A31	① Used in model TV-947.
B	PM		②			② Used in model TV--949.
C	PM		③			③ Used in model TV- 950.
	CONE DIA.	V. C. DIA.				
SP2A	9 1/2"	1"	①			
B	10"		②			
C			③			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	OLYMPIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.265A	62Ω	2.6 Henries	CK-1346	C-2325 ‡	C-2991 ‡	TR-3300 ‡	‡ Drill one new mounting hole.

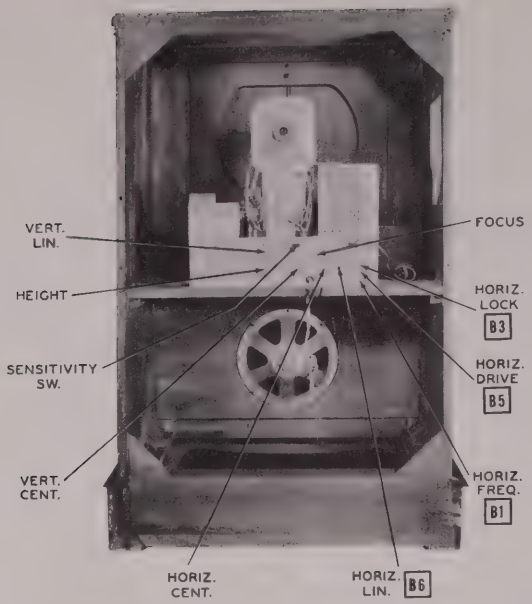
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω				
L3	RF Plate, Mixer Grid & Osc. Coil	0Ω				
L4	Fil. Choke	0Ω				
L5	Fil. Choke	0Ω				
L6	1st Video IF & Sound Take-Off	.1Ω	.1Ω			
L7	Video IF Coupling	.1Ω				
L8	2nd Video IF	.1Ω				
L9	3rd Video IF	.1Ω				
L10	4th Video IF	.1Ω				
L11	Sound Trap	0Ω	0Ω			
L12	5th Video IF	.1Ω				
L13	Peaking	3Ω				36 microhenries. Black identification dot.
L14	Peaking	9Ω				180 microhenries. Wound on 39KΩ resistor. White identification dot.
L15	Peaking	4Ω				93 microhenries. Wound on 10KΩ resistor. Orange identification dot.
L16	Peaking	6Ω				120 microhenries. Wound on 22KΩ resistor. Blue identification dot.
L17	1st Sound IF	0Ω				
L18	2nd Sound IF	0Ω	0Ω			
L19	Disc. Trans.	.1Ω	0Ω			
L20	Width Cont.					Not used in all models, see note
L21	Hor. Linearity	35Ω				

Note. In sets not using a width control, connection to terminal #5 on horizontal output and HV transformer is made to terminal #6 instead.

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M1	RF Tuner		
M2	Sensitivity SW		
M3	Ion Trap		
M4	Fuse		Type GJV .25A
	Trimmer Strip		Hor. Lock (10-160MMF), Hor. Drive (50-370MMF) and Hor. Freq. (50-370MMF)



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

Tune in test pattern and turn horizontal hold control to extreme counter-clockwise position. Picture should remain in synchronization. Turn channel switch to another channel and then back to the original channel. Normally, the picture should be out of synchronization. Turn the control clockwise and the picture should slowly begin to synchronize and finally lock-in. This should occur when the control is approximately 90° from the extreme counter-clockwise position. The picture should remain in synchronization for another 90° in the clockwise direction of the control. At the extreme clockwise position the picture should again drop out of synchronization and 3½ to 4½ bars should be seen sloping downward to the right. If the receiver fails to hold synchronization during this check with the hold control at the extreme counter-clockwise position or fails to hold synchronization for at least 60 in the clockwise direction from the point when it drops into "sync". it will be necessary to align the horizontal oscillator circuit as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT:

Turn horizontal hold control to extreme clockwise position. Tune in test pattern and adjust trimmer B1 until picture is out of sync. and shows 3½ to 4½ bars sloping downward to the right. If the trimmer has insufficient range, set it to its mid-position (one turn from tight) and adjust slug B2 until bars appear.

(B) HORIZONTAL LOCKING ALIGNMENT:

Turn the horizontal hold control to full counter-clock-wise position. Switch to another channel and back to the original again.

Slowly turn horizontal hold control clockwise and note the least number of diagonal bars present just before picture syncs. Adjust "horizontal lock" trimmer B3 slightly clockwise. If less than 3½ bars are present adjust B3 slightly counter clockwise and switch channel selector to another channel and back again. Recount bars present at the "lock-in" point. Repeat this procedure until 3½ to 4½ bars are present.

Repeat steps (A) and (B) until conditions exist as outlined under "Horizontal Oscillator Alignment Check".

WIDTH, DRIVE AND HORIZONTAL LINEARITY ADJUSTMENTS

Some models do not have a width adjustment (B4). If the set has a width adjustment, turn it to maximum clockwise (all the way in). Adjust the horizontal drive trimmer (B5) for maximum brightness without crowding the right side of the picture. Adjust the horizontal linearity adjustment for best linearity in the right half of the picture. Readjust B4 until the picture fills the mask horizontally.

PHILCO MODEL 50-620
(BATTERY-LINE OPERATED)

PHILCO MODEL 50-620
(BATTERY-LINE OPERATED)

PHILCO MODEL 50-620

TRADE NAME	Philco, Model 50-620
MANUFACTURER	Philco Corp., Tioga and "C" Sts., Philadelphia, Pa.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver
TUBES (FOUR)	Types 1R5 Converter, 1T4 IF Amp., 1U5 DET-AVC-AF, 3V4 Power Output
POWER SUPPLY RATING	105-120 Volts AC-DC or 7.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form .16 Amp. at 117 Volts AC or 55MA at 7.5 Volts DC and 11MA at 90 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer turn tuning gang fully closed and set the pointer 1 inch to the right of the left hand end of the dial backplate.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to ext. antenna connection. Low side to B-.	455KC (400 ~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC position is used without an isolation transformer reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1600KC	Set pointer 5 1/4 inches to the right of left hand end of dial backplate.	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust. for maximum output.
3.		Loop	1500KC	Tune for max. output.	"	A5	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2	IF Amp.	1T4	1T4	6AR	
V3	DET.-AVC-AF	1U5	1U5	6BW	
V4	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	30	150	30-2568-21	AF666D8A	UP33315C4		EL-434	▪ Filter
B	30	150						■ Filter
C	20	150						▲ Filter
D	30	25						Output Filament Bypass
C2	5		30-1224-5	1468-000005	5W5V5	NPOK-5	MS-55	Ant. Coupling
C3	100		60-10105407	1468-0001	5W5T1	GP1K-100	1FM-31	RF Coupling
C4	1.5		30-1221-3			NPOK-1.5		Neutralizing
C5	47		60-00515307	1468-00005	5W5Q5	GP1K-47	1FM-45	Osc. Grid Cap.
C6	7.5		30-1224-26			N220K-7.5		Fixed Trimmer
C7	.05	200	61-0122	P288-05	PTE4S5		TM-15	AVC Filter
C8	.1	200	61-0113	P288-1	PTE4P1		68P17	Decoupling
C9	1.5		30-1221-3			NPOK-1.5		Neutralizing
C10	.002	200	61-0062	P688-002	PTE6D2	GP2M-002	TM-22	Audio Coupling
C11	.05	200	61-0122	P288-05	PTE4S5		68P16	AF Amp. Screen Bypass
C12	.004	600	61-0179	P688-004	PTE6D4	811-005	TM-22	Audio Coupling
C13	220	500	62-122001001	1468-00025	5W5T25	GP2K-220	1FM-325	Output Grid Bypass
C14	.25	100	61-0125	P488-25	GT2P25		68P24	Filament Bypass
C15	.004	600	61-0179	P688-004	PTE6D4	811-005	TM-24	Output Plate Bypass
C16	.1	400	30-4527	P488-1	PTE4P1		72P52	Line Isolation
C17	.05	400	61-0122	P488-05	PTE4S5		TM-15	Line Filter

CONTROLS

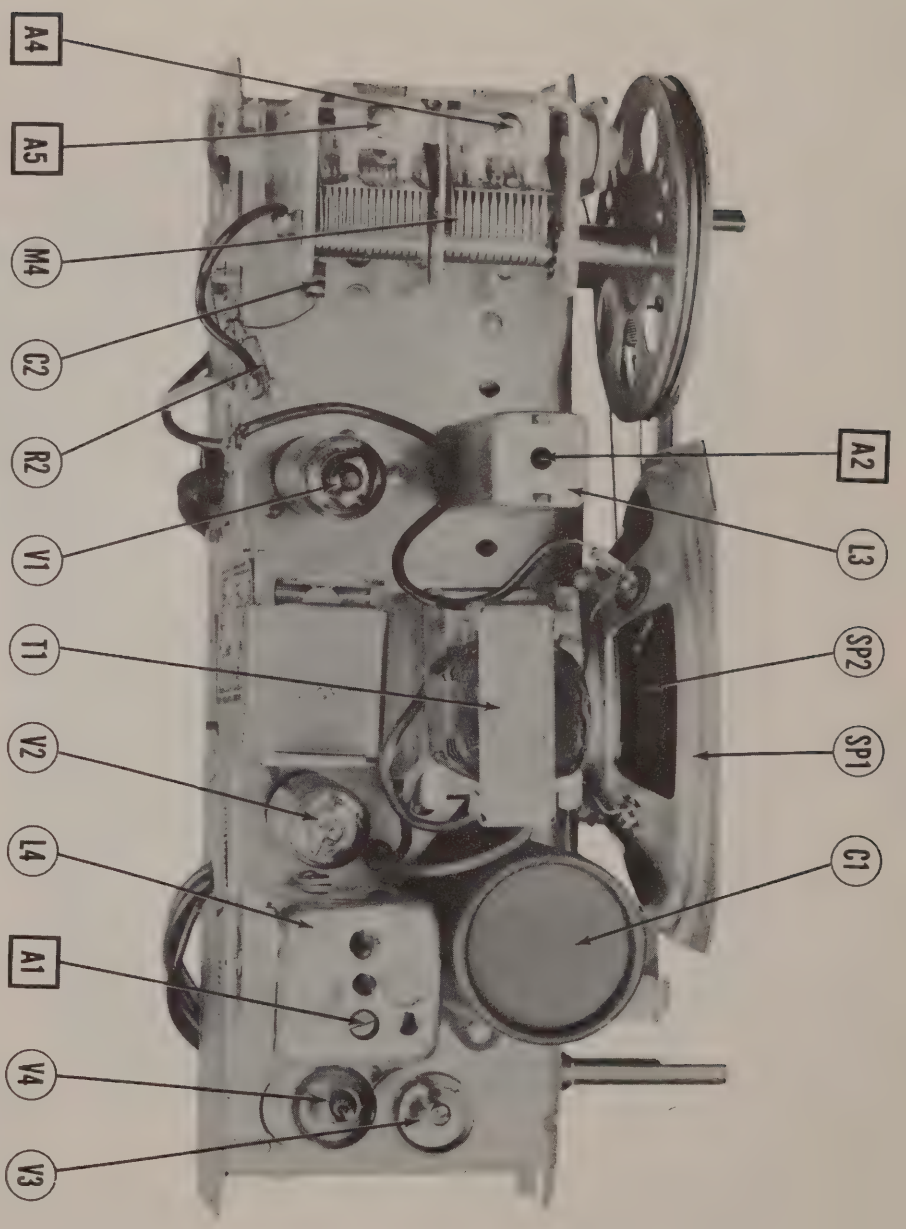
ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	1 Meg.	½	33-5538-28	Q13-137	M-63-Z	Volume control
B	Switch		Not Req.	76-2	SW-A2	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
R2	150KΩ	½	66-4153340	BTS-150K	Ant. Isolation
R3	1 Meg.	½	66-5103340	BTS-1 Meg.	Conv. Grid
R4	3.3 Meg.	½	66-5333340	BTS-3.3 Meg.	AVC Network
R5	100KΩ	½	66-4103340	BTS-100K	Osc. Grid
R6	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	AVC Network
R7	10KΩ	½	66-3103340	BTS-10K	1st IF Screen
R8	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	AF Grid
R9	10 Meg.	½	66-6103340	BTS-10 Meg.	AF Screen
R10	1.2 Meg.	½	66-5123340	BTS-1.2 Meg.	AF Plate
R11	470KΩ	½	66-4473340	BTS-470K	Output Grid
R12	680Ω	½	66-1683340	BTS-680	Filament String
R13	680Ω	½	66-1683340	BTS-680	Filament String
R14	150KΩ	½	66-4153340	BTS-150K	Isolation
R15	2200Ω	½	66-2223340	BTS-2200	Filter
R16A	1125Ω	3	33-3431-5	ABA-2250 ‡	Filter-Wire Wound
B	1125Ω	3			Filament Dropping-Wire Wound
R17	60Ω	1	33-1334		Surge Limiter-Wire Wound

‡ Set slider at 1125Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	8.5KΩ	3.2Ω	700Ω	.5Ω	Part of 36-1627-9	A-3879 #	A-2932 #	RO-16 #	# Bend mounting tabs down and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-113 * †		* Remount output transformer.
SP1	PM	3.2Ω	36-1627-9	MOD. P4-X	4A1 *	† Drill and tap magnet frame.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.
L1	Loop Ant.	3.3Ω		32-4274	
L2	Osc. Coil	2Ω	6.5Ω	32-4263	14-1074
L3	Input IF	24Ω	24Ω	32-4160-4A	16-6668
L4	Output IF	40Ω		32-3987-3	16-6670

SELENIUM RECTIFIER

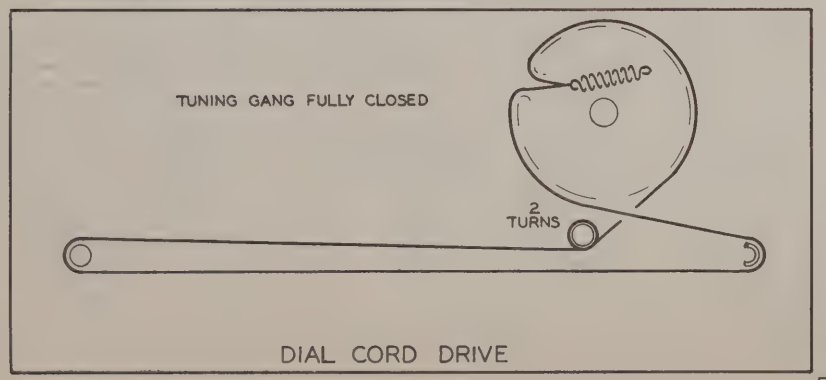
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	PHILCO PART No.	SYLVANIA PART No.		
M1	.064A	34-8003-1	NB-5		

BATTERIES

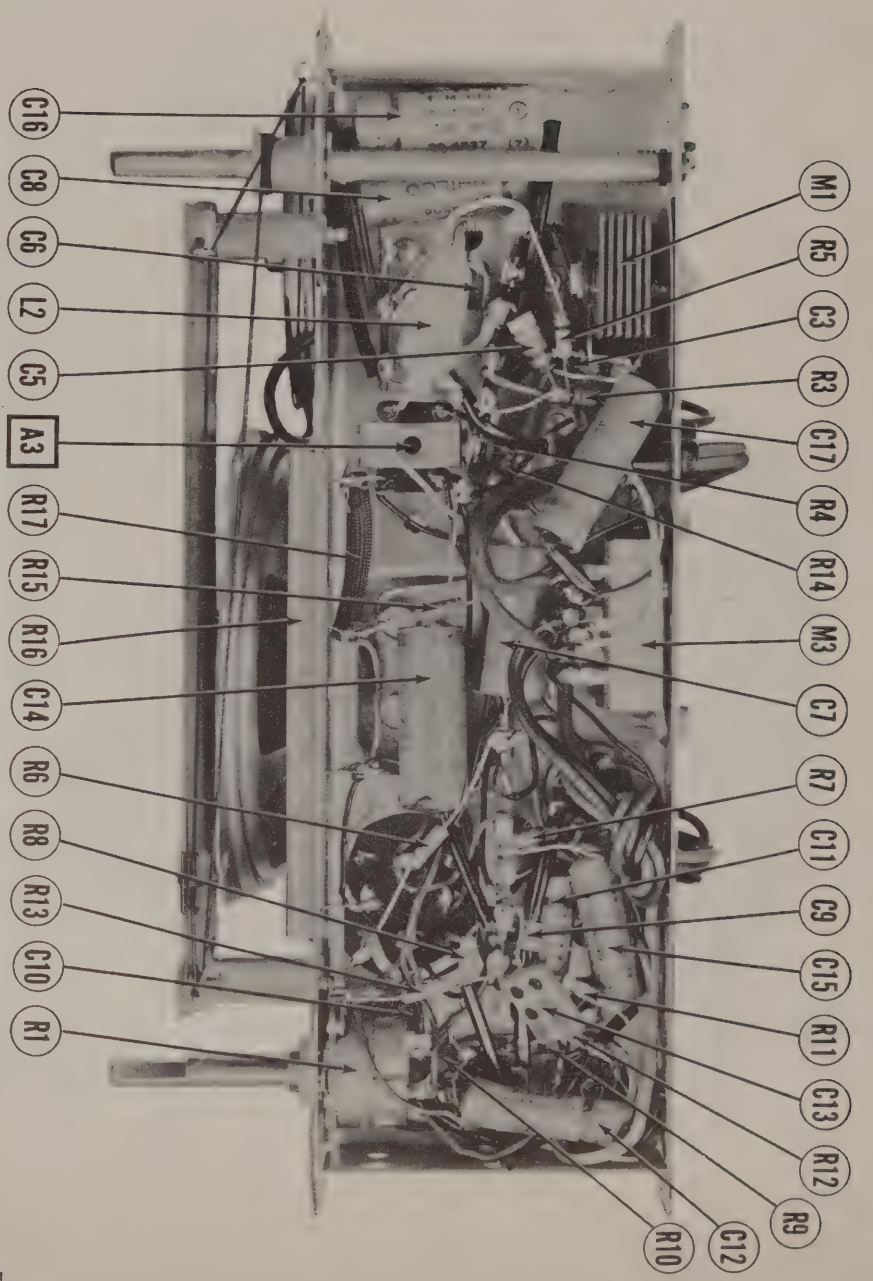
ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	7.5V "A" 90V "B"	P-361			756			T5Z60	

MISCELLANEOUS

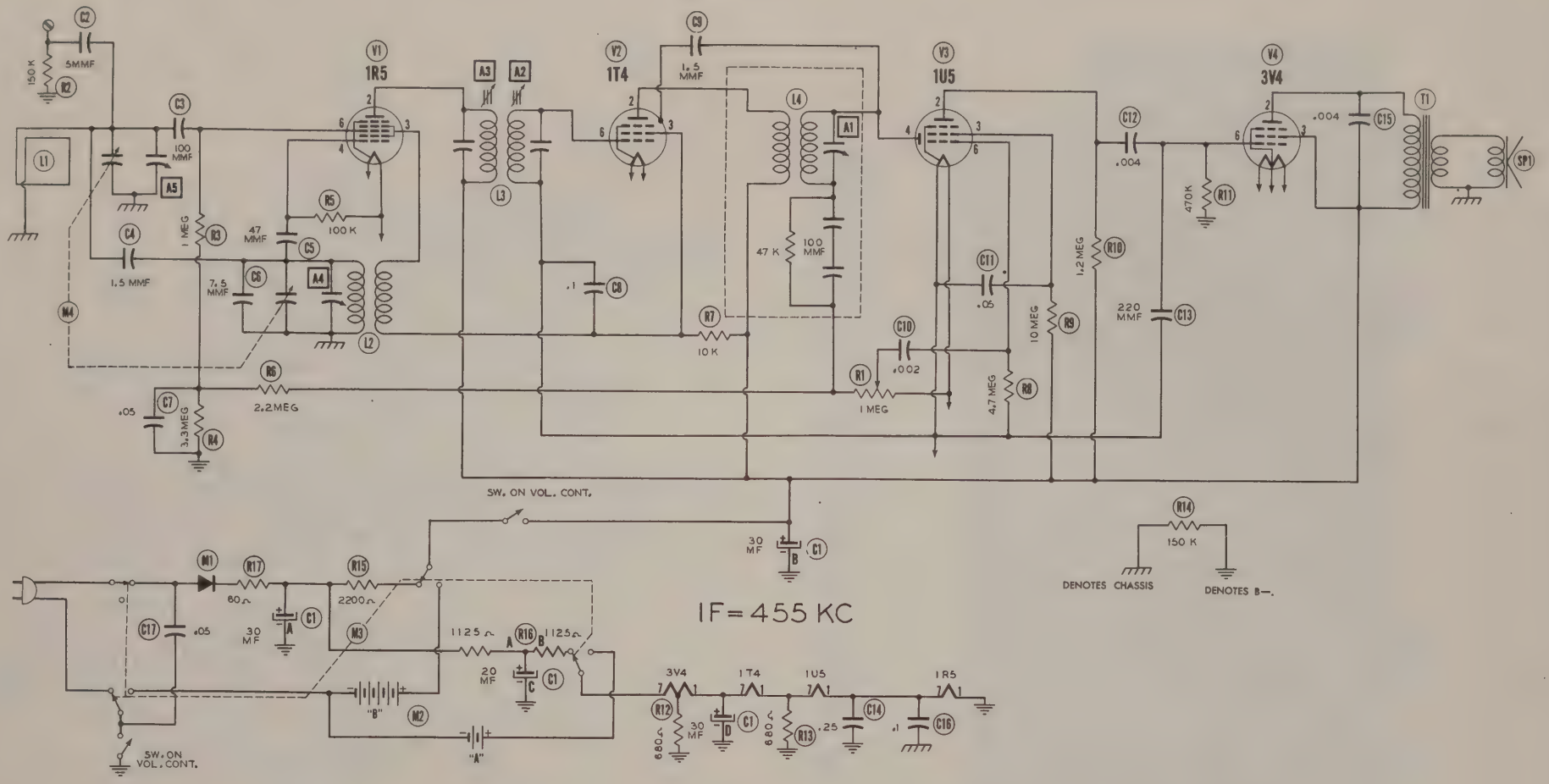
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3	Switch	42-1821	AC/DC -Battery
M4	2 Gang. Var. Cap.	31-2727-2	(27-496MMF, 24-165MMF)
	Dial Pointer	54-4362-3FCP	
	Cabinet	10703	Maroon
	Cabinet	10703C	Green
	Cabinet	10703D	Brown



CHASSIS—BOTTOM VIEW



PHILCO MODEL 50-620



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0V.	93VDC	57VDC	5-10VDC	0V.	.1VDC	1.4VDC
V 2	1T4	2.7VDC	93VDC	57VDC	0V.	2.7VDC	1.3VDC	4.3VDC
V 3	1U5	1.4VDC	25VDC	15VDC	.4VDC	0V.	0V.	2.7VDC
V 4	3V4	4.3VDC	90VDC	95VDC	0V.	5.6VDC	0V.	7VDC

‡ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†2.2KΩ	†12KΩ	100KΩ	*	4.3 Meg.	*
V 2	1T4	*	†2.2KΩ	†12KΩ	Inf.	*	24Ω	*
V 3	1U5	*	†1.2 Meg.	†10 Meg.	1 Meg.	Inf.	4.7 Meg.	*
V 4	3V4	*	†3KΩ	†2.2KΩ	Inf.	*	470KΩ	*

* DO NOT USE OHMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.

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85-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

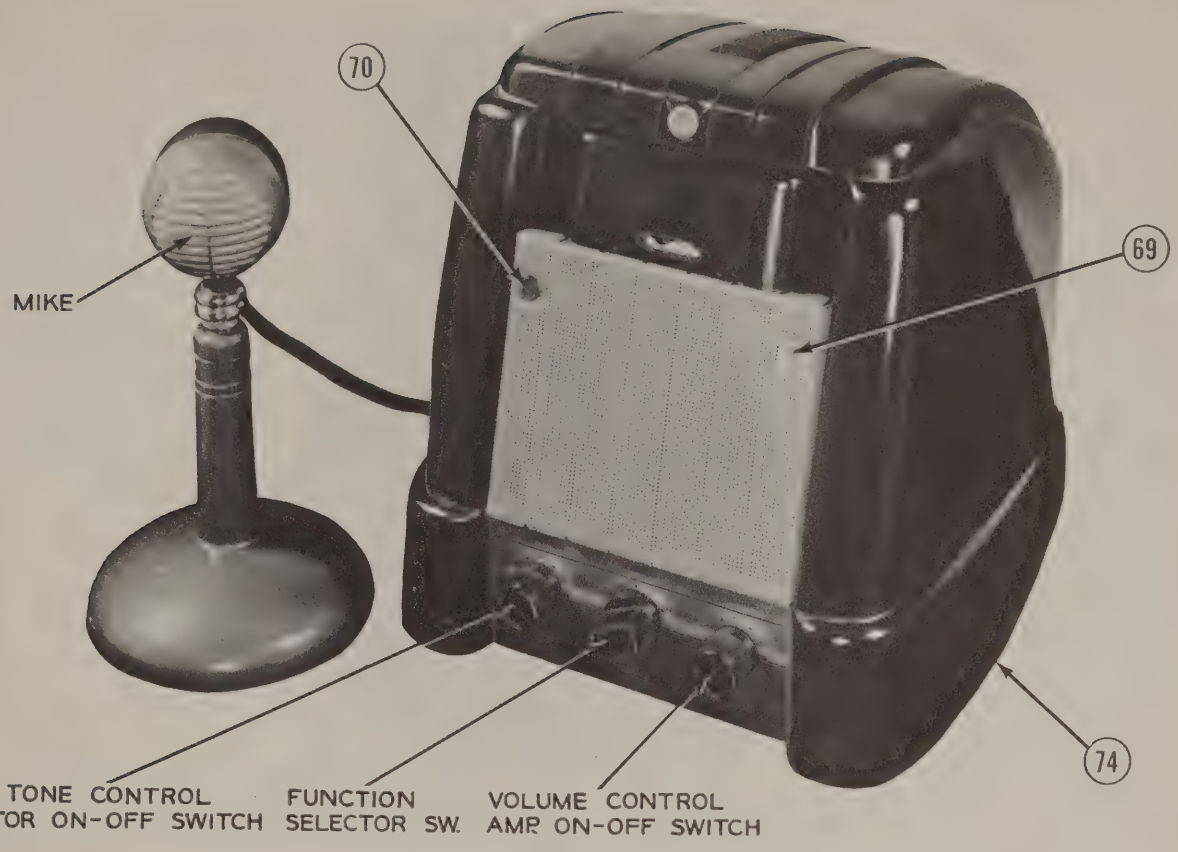

FIG. 1—COMPLETE UNIT

GENERAL INFORMATION

The RCA Magnetic Wire Recorder, complete, consists of a recorder-amplifier (MI-12875), a wire cartridge (MI-12877), and a microphone (MI-6226N). The unit is designed so that the wire cartridge can be inserted into, or removed from, the recorder without tools. The unit incorporates two limit switches which are connected in series with the motor and are coupled to the cartridge mechanism in such a manner that as the wire nears either end the circuit opens and the motor stops automatically.

Manufactured by

RADIO CORPORATION OF AMERICA • RCA VICTOR DIVISION

CAMDEN, NEW JERSEY

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MODEL MI-12875

RCA
MODEL MI-12875

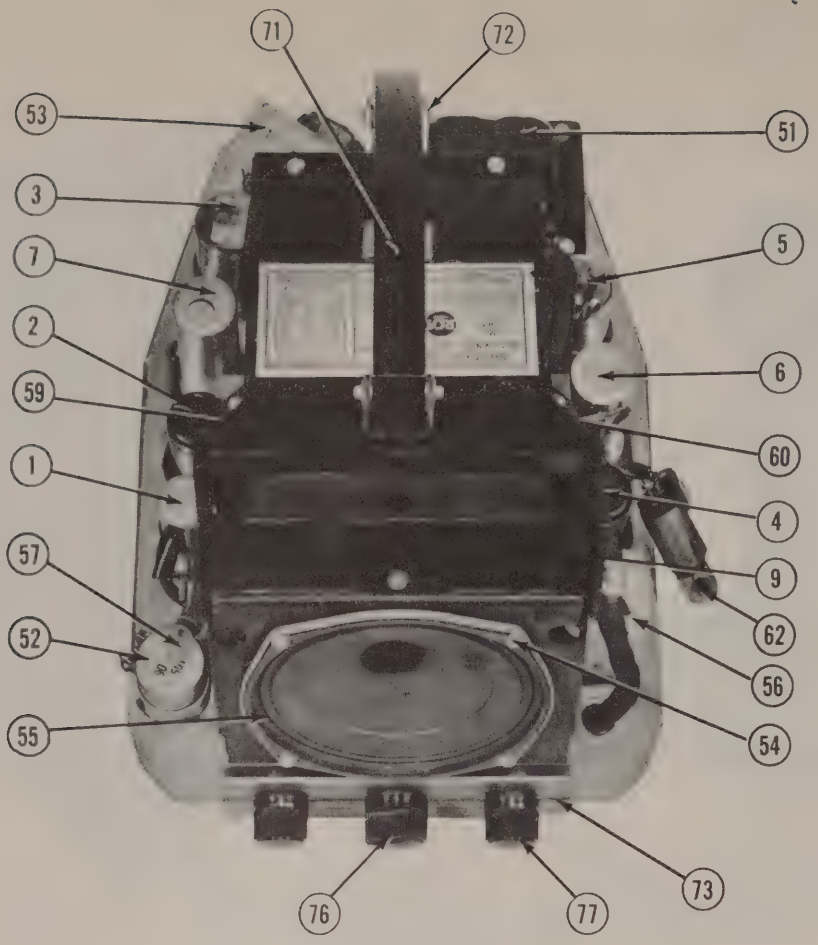

FIG. 2—TOP VIEW

OPERATING CONTROLS

All controls needed to operate the recorder are available from the front panel. They are (from left to right) the combined tone control and motor "On and Off" switch (23), the function selector switch (58), and the combined volume control and amplifier "On-Off" switch (22).

The function switch (58) is a six-position switch which controls the function of the circuits and selects the wire in use. The three upper positions, above the red lines on the panel, are associated with the red scale on the dial, while the three lower positions are associated with the black scale. In each group there is a Play, Rewind, and a Record position.

When the function selector is set on either the red or the black Play position, the sound pickup head is connected to the amplifier input and the loudspeaker to its output. When the selector is on either Rewind position, the wire merely runs backward. When on either Record position, the microphone is connected to the amplifier input and the recording head to its output, while on record, the erasing head is energized and any previous recording on the wire in use will be erased before passing the recording head.

The Tone control is effective only on the Play position, while the Volume control remains in the circuit for all settings of the function selector.

The green pilot light (57) indicates when the amplifier is energized. The neon lamp (62) indicates the recording level of the amplifier. The lamp may flash during play-back when the volume is turned up high. This is normal.

At the rear of the recorder unit is a terminal board containing the microphone input jack, a two-amp. fuse, and provisions for the use of an external speaker. When an external six-ohm speaker is connected to terminals two and three, the link between terminals one and two must be open. This disconnects the internal speaker.

The unit incorporates two limit switches (59) and (60). They are connected in series with the motor and are coupled to the cartridge in such a manner that as the wire nears either end, the circuit opens and the motor stops automatically.

OPERATION

To set up the equipment for operation, first place the recorder on a hard surface so that nothing will interfere with the flow of air to the motor fan (68). Insert the microphone plug into the microphone connector on the terminal board on the rear panel. Plug the power cord into a 60-cycle, 115-volt outlet. Place the wire cartridge in its compartment, making sure the cartridge is all the way in. The equipment is now ready for a trial run.

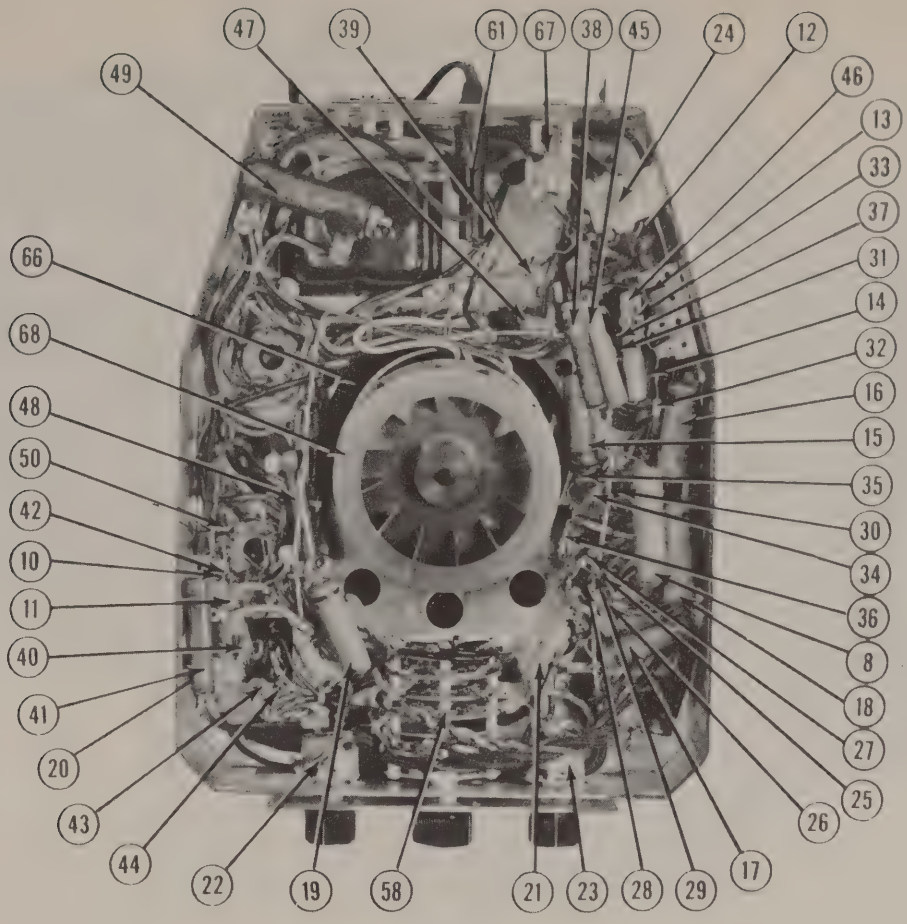

FIG. 3—BOTTOM VIEW

Trial Run

To record speech or music:

1. Turn the Volume control slightly to the right and allow thirty seconds for the amplifier to warm up.

2. Set the Function Selector to either "red" or "black" Record position. If the reading on the back scale is nearer 0 than 15, it is preferable to set that selector on the lower Record position and to use the black scale; and if the reading is nearer 15, it is preferable to set the selector on the upper Record position and to use the red scale.

3. Start the motor by turning the Tone control to the right. Note the starting point on the cartridge time indicator scale.

4. Speak into the microphone in a normal conversational voice from a distance of 6 inches.

5. Adjust the Volume control until the neon lamp (62) flashes when stressed syllables are sounded.

Note: It is good practice to control the recorder with the function selector and the motor switch in such a manner that the limit switches will not be used to stop the motor. Change to the other scale at the end of a sentence which occurs near 15 or 30. This may prevent the loss of a small portion of the recording.

To Play Back

1. Return the wire to the starting point (as indicated by the cartridge time indicator) by turning the function selector one step to Rewind.

2. When the wire is rewound to the starting point, turn the function indicator one step to Play.

CAUTION: Do not leave the cartridge in place when the equipment is not in actual use. Either remove it entirely from the compartment or pull it out far enough to disengage the rubber rollers from the motordriving shaft. Prolonged engagement in a fixed position may cause dents in the rollers which could impair the quality of the recording.

Long Recordings

When long recordings are to be made, set the function selector to the bottom Rewind and let the recorder run until the cartridge indicator reaches 0. Then turn the function selector to the bottom Record position and begin recording.

When the cartridge indicator reaches 15 black, turn the function selector to the upper Record to finish the recording. If at the end of the wire "red 30" the recording is not complete, a new cartridge must be inserted.

To play the recording back immediately, turn the selector to the lower Rewind position to return the dial to 0. Then turn the selector to the lower Play position, and play back the recording. When the dial reaches 15, turn the selector to the upper Play position; at 30 red, turn off the motor and remove the cartridge.

FIG. 4—CARTRIDGE—MI-12877

Short Recordings

Many short recordings can be placed on the wires of a cartridge. They may be any length providing the total time does not exceed 30 minutes. The beginning of each of these recordings should be indexed, for reference, by cartridge, scale color, and scale reading.

When short test recordings are made with the intention of immediate playback, it is convenient to divide each selection into two equal parts and to record one half on each wire. For example, the first half of a 10-minute selection may be recorded from 5 to 10 on the black scale (lower Record), and the second half from 20 to 25 on the red scale (upper Record). This division has the advantage of permitting immediate playback without rewinding. To begin playing back at the end of the selection, it is only necessary to turn the function selector three steps, in either direction, to the appropriate Play position.

CAUTION: When the function selector is in the Record position, all previously recorded sound on the wire will be erased automatically before the wire passes the recording head; therefore, do not leave the recorder in the Record position when the unit is not in actual use.

ERASURE: Erasure of a recording is done automatically before the wire passes the recording head; however, it may be desired to erase a recording and have the wire blank. This may be accomplished by turning the selector to the appropriate Record position and letting the entire wire run through the recording head with the Volume control on minimum setting.

Installing a Motor

To install a new motor, proceed as follows:

1. Push the motor up until the lower edge of the motor pulley is flush with the floor of the cartridge chamber.

2. Make sure that the motor holding band is not cocked, with respect to the motor, before tightening the clamp screw.

3. Make sure the motor tension spring is in place.

4. Loosen the screw on the motor stop.

5. Insert the cartridge and turn the motor on. Let the motor run for a few seconds to allow the pulley to center between rubber drive wheels in cartridge.

6. Adjust the eccentric motor stop cam washer so that the lower edge of the stop (which is fastened to the holding band) clears the chassis top by not more than 1/16".

7. Tighten the screw on the motor stop.

CAUTION: If the stop assembly has been taken apart, be sure, when reassembling, to place the lockwasher between the cam washer and the bracket.

FIG. 5—CARTRIDGE—BOTTOM VIEW

Replacing a New Pickup Head

1. Remove the instrument cabinet (74).
2. Remove the rear handle (72) bracket.
3. Remove the pickup terminal board cover.
4. Remove the cable clamp and unsolder the seven leads on the terminal board.
5. Remove the two screws holding the pickup head assembly and remove the old assembly.
6. Place the new pickup head in position, making sure that the two orientation pins are properly placed in their respective socket holes.
7. Replace the two plate holding screws.
8. Resolder the seven terminal leads following the color code shown on the terminal board circuit, Fig. (6).
9. Replace the cable clamp, terminal board cover, and handle bracket assembly.

Limit Switches

The trigger rod that actuates the two limit switches is located directly in front of the motor shaft. This trigger rod is moved to the right or left by a cam on the time disc in the cartridge, and operates a slide which, in turn, depresses the limit microswitches.

When the selector switch is in the "Play" position "black," and the motor is running, moving the trigger rod to the right (facing the unit) should stop the motor; moving it to the left should have no effect. When the selector switch is in the "Play" position red, moving the trigger rod to the left should stop the drive motor.

To Replace a Defective Limit Switch

1. Remove the limit switch holding plate screws.
2. Unsolder the two wires on each side of the cartridge chamber attached to the limit switches, and remove the plate that holds the switches.
3. Remove the defective switch and install a new one. Note that one switch is installed "upside down" in relation to the other when assembled on the holding plate.
4. Replace the plate, making sure that the spacer washers are between the plate and chassis, and that the trigger rod is approximately centered.
5. After tightening the plate holding screws, check the limit switch operations as described above.

Modulation Level Indicator

The modulation level indicator is a neon lamp located behind the clear pilot light on the upper right-hand front corner of the recorder unit. It is adjusted by varying the value of item (24), a potentiometer controlling the exciting voltage across it. Item (24) may be reached with a small screwdriver through a convenient hole in the bottom cover.

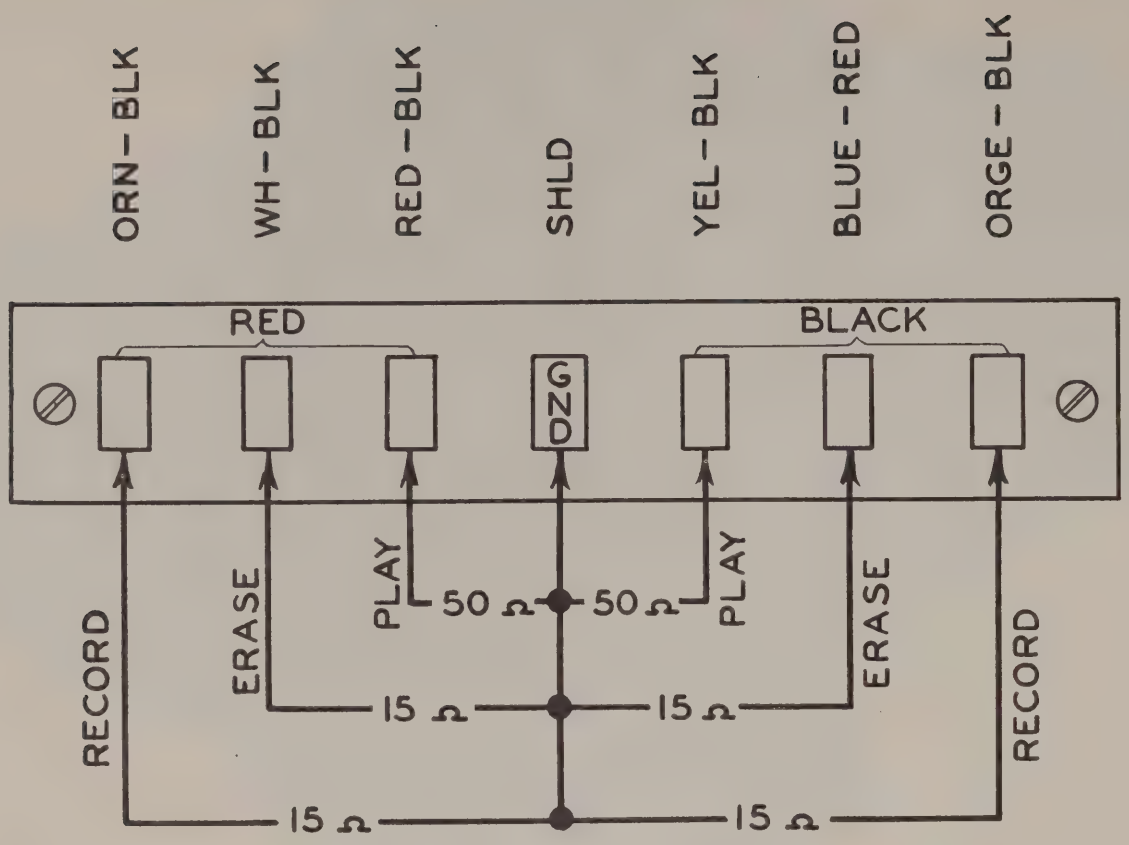

FIG. 6—PICKUP UNIT TERMINAL CIRCUIT—COLOR CODE

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6J7	OV	*14VDC	65VDC	30VDC	1VDC	OV	*14VDC	1VDC	
2	6SJ7	OV	*14VDC	1.2VDC	OV	1.2VDC	30VDC	*14VDC	95VDC	
3	6V6	OV	*14VDC	280VDC	280VDC	OV	137VDC	*14VDC	19VDC	
4	**6SJ7	OV	*14VDC	175VDC	§—42VDC	OV	175VDC	*14VDC	175VDC	
5	5Y3GT	OV	380VDC	OV	350VAC	OV	350VAC	OV	380VDC	

NOTES:

§ Taken with vacuum tube voltmeter.
*Measure 6.4 VAC between filament pins.
**Voltage and Resistance taken in record position. V & R taken in play position.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6J7	0 Ohm	280 Ohm	400K Ohm	1.3 Meg.	1.5K Ohm	Inf.	280 Ohm	1.5K Ohm	2
2	6SJ7	0 Ohm	280 Ohm	1K Ohm	500K Ohm	1K Ohm	1.3 Meg.	280 Ohm	270K Ohm	
3	6V6	0 Ohm	280 Ohm	55K Ohm	55K Ohm	340K Ohm	27K Ohm	280 Ohm	270 Ohm	
4	**6SJ7	0 Ohm	280 Ohm	65K Ohm	15K Ohm	0 Ohm	65K Ohm	280 Ohm	65K Ohm	
5	5Y3GT	INF.	55K Ohm	INF.	360 Ohm	INF.	380 Ohm	INF.	55K Ohm	

**Voltage and Resistance taken in record position.

NOTES:

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±10% in voltage and resistance readings.
6. Volume control at maximum; no signal applied for voltage measurements.

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PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	6J7	1st AF amp.
2	6SJ7	2nd AF amp.
3	6V6GT	Power Output
4	6SJ7	Oscillator
5	5Y3GT	Rectifier
6A, B	34889	Filter capacitor (electrolytic) 20-20 mfd. @ 450 volts
7A, B, C	37888	Filter capacitor (electrolytic) 15-15 mfd. @ 450 volts and 40 mfd. @ 25 volts
8	36718	Cathode bypass 10 mfd. @ 10 volts
9		Motor capacitor 3.3 mfd. @ 330 volts
10	70610	Bias osc. grid .01 mfd. @ 400 volts
11	70617	Audio coupling .1 mfd. @ 400 volts
12	70611	Neon indicator coupling .02 mfd. @ 600 volts
13	70610	Feedback .01 mfd. @ 400 volts
14	70600	Audio coupling .001 mfd. @ 600 volts
15	70617	2nd AF screen bypass .1 mfd. @ 400 volts
16	70617	2nd AF cathode bypass .1 mfd [illegible] volts
17	70615	Audio coupling .05 mfd. @ 400 volts
18	70617	1st AF screen bypass .1 mfd. @ 400 volts
19	70617	RF bypass power supply .1 mfd. @ 400 volts
20	68908	Fixed trimmer 5000 mmf. @ 500 volts
21	47047	Tone compensation 2200 mmf. @ 500 volts
22	71953	Volume control 500K ohms, ½ watt
23	71952	Tone control 500K ohms, ½ watt
24	71954	Neon adjust control 200K ohms, ½ watt
25	30654	1st AF cathode 1500 ohms, ¼ watt
26	30372	Hum balance 47 ohms, ½ watt
27	30372	Hum balance 47 ohms, ½ watt
28	30162	1st AF screen dropping 1.2 meg., ¼ watt
29	30651	1st AF plate load 270K ohms, ½ watt
30	34766	2nd AF cathode 1000 ohms, ¼ watt
31	30538	Tone compensation 330 ohms, ¼ watt
32	14983	Feedback 330K ohms, ¼ watt
33	30652	Feedback 1 megohm, ¼ watt
34	14583	2nd AF plate load 200K ohms, ½ watt
35	30162	2nd AF screen dropping 1.2 meg., ¼ watt
36	14023	Filter 82K ohms, ½ watt
37	14983	Output grid 330K ohms, ¼ watt
38	53099	Output cathode 270 ohms, 2 watts
39	30651	Voltage divider 270K ohms, ½ watt
40	30499	Tone compensation 470 ohms, ¼ watt
41	71955	Output transformer shunt 6 ohms, 10 watts
42	36714	Oscillator grid 15K ohms, ½ watt
43	3579	Oscillator coil shunt 62 ohms, ½ watt
44	34209	Oscillator coil shunt 22 ohms, ½ watt
45	28744	Bleeder network 33K ohms, 2 watts
46	28744	Bleeder network 33K ohms, 2 watts
47	33855	Filter 2700 ohms, 2 watts
48	71956	Decoupling 8500 ohms, 10 watts
49	53747	Filter 1500 ohms, 25 watts
50	39380	Series pilot light 27 ohms, 1 watt
51	72759	Power transformer
52	52775	Input transformer
53	71951	Output transformer
54	71947	Speaker (3.6 ohms voice coil)
55		None—cone not supplied separately
56	72126	Oscillator coil
57	31480	Pilot light
58	71959	"Play-Rewind-Record" switch
59	72134	Switch, limit
60	72134	Switch, limit
61	3883	Fuse—2 amp., 250 valts
62	RCA-991	Neon lamp
63	MI-6226N	Microphone (Aero-Dynamic)
64	72123	Pickup, complete unit
65	MI-12877	Wire cartridge
66	71948	Motor, drive motor
67	71958	Microphone jack
68	72141	Motor fan
69	72136	Pilot light, clear
70	72137	Pilot light, green
71	72133	Handle
72	72132	Rear handle bracket
73	72131	Control panel
74	72128	Instrument cabinet
75	72127	Foot cabinet
76	72129	Knob, rewind-play-record
77	72130	Knob, tone-volume
78	71958	Terminal board

PHOTOFACT* Folder

RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9TC270, 9TC272, 9TC275

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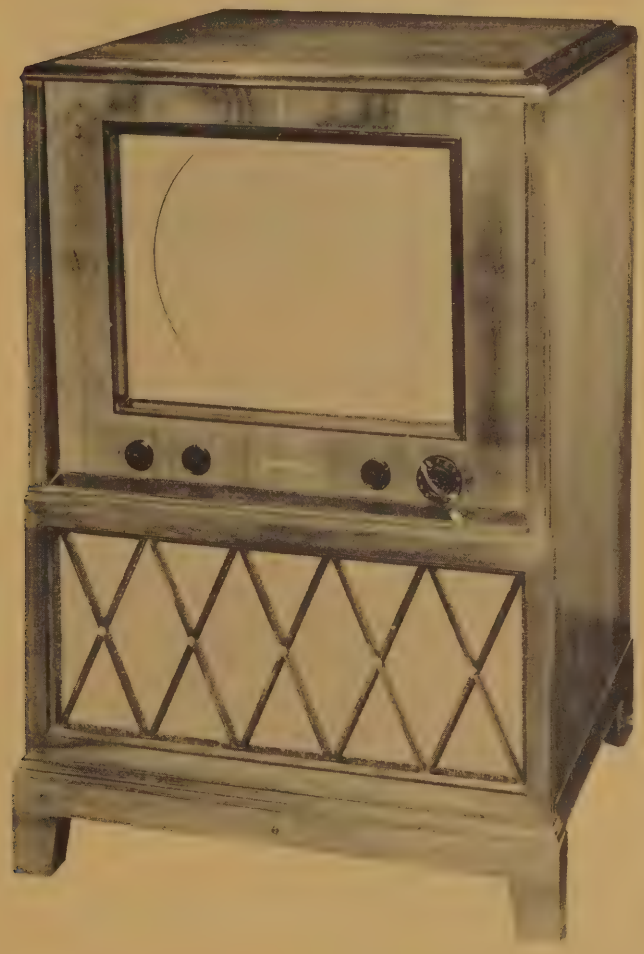

MODEL 9TC272

RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9TC270, 9TC272, 9TC275

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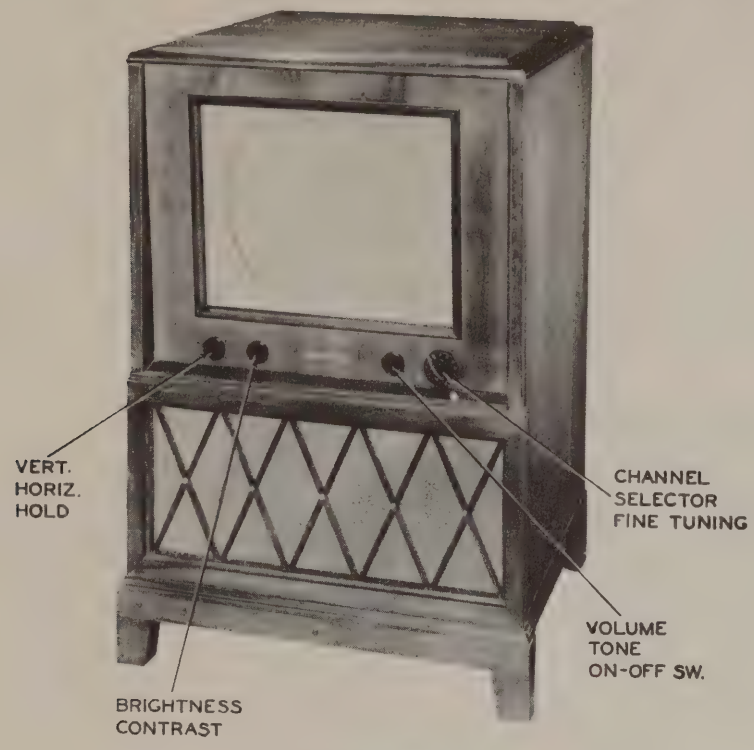
RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9T270, 9TC272, 9TC275



RCA VICTOR MODEL 9TC272

TRADE NAME	RCA Models 8T270, 8TC270, 8TC271 (Ch. KCS29, A), 8TK320 (Ch. KCS33A-1 and Radio chassis RK-135A-1) 9T270, 9TC272, 9TC275 (Ch. KCS29, C)
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, New Jersey
TYPE SET	AM-FM-Phono-TV Combination Receiver (Some Models "TV" only).
TUBES	Thirty Two (Combination Models) Twenty Seven ("TV" only Models)
POWER SUPPLY	110-120 Volts AC-60 Cycles
RATING	2.3 Amp. at 117 Volts AC (TV Operation)
TUNING RANGES	AM 540-1600KC FM 88-108MC TV Channels 2 thru 13

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RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9T270, 9TC272, 9TC275

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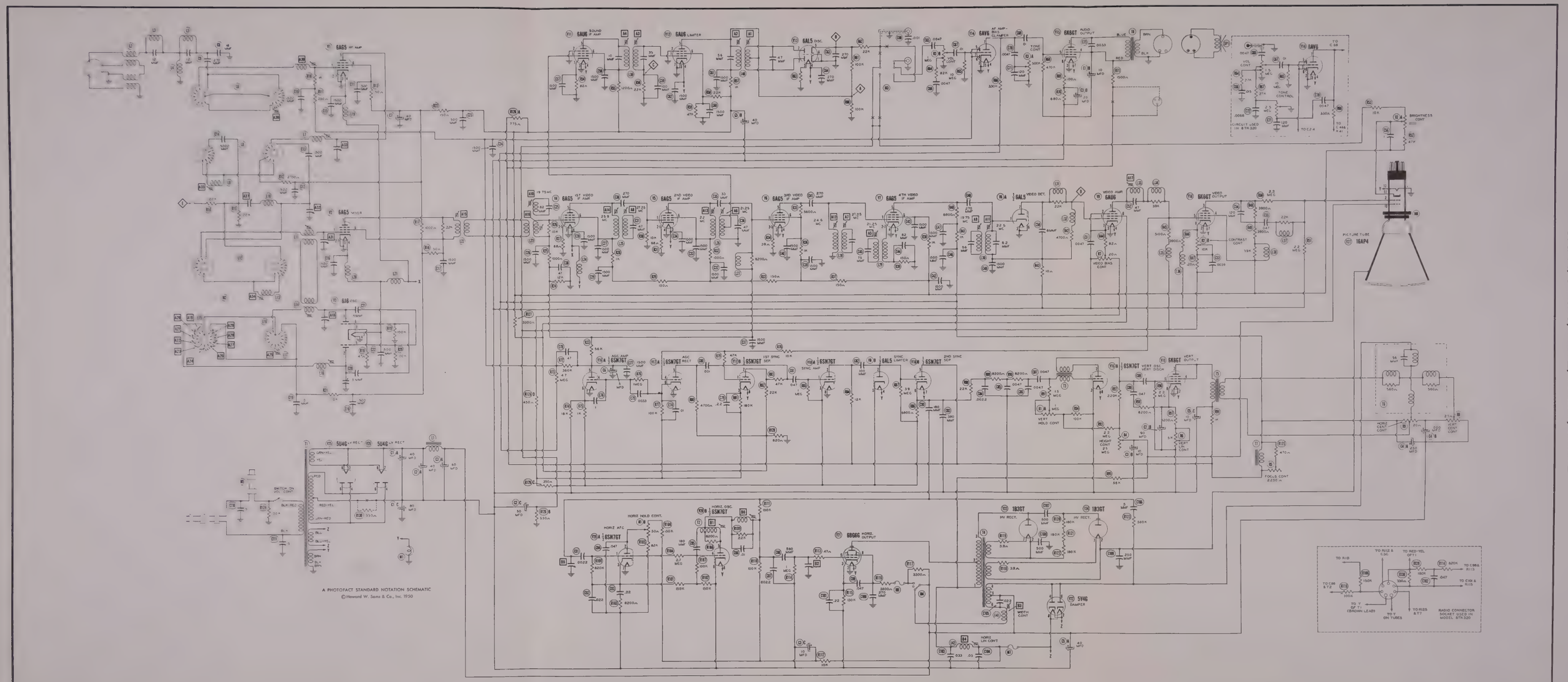
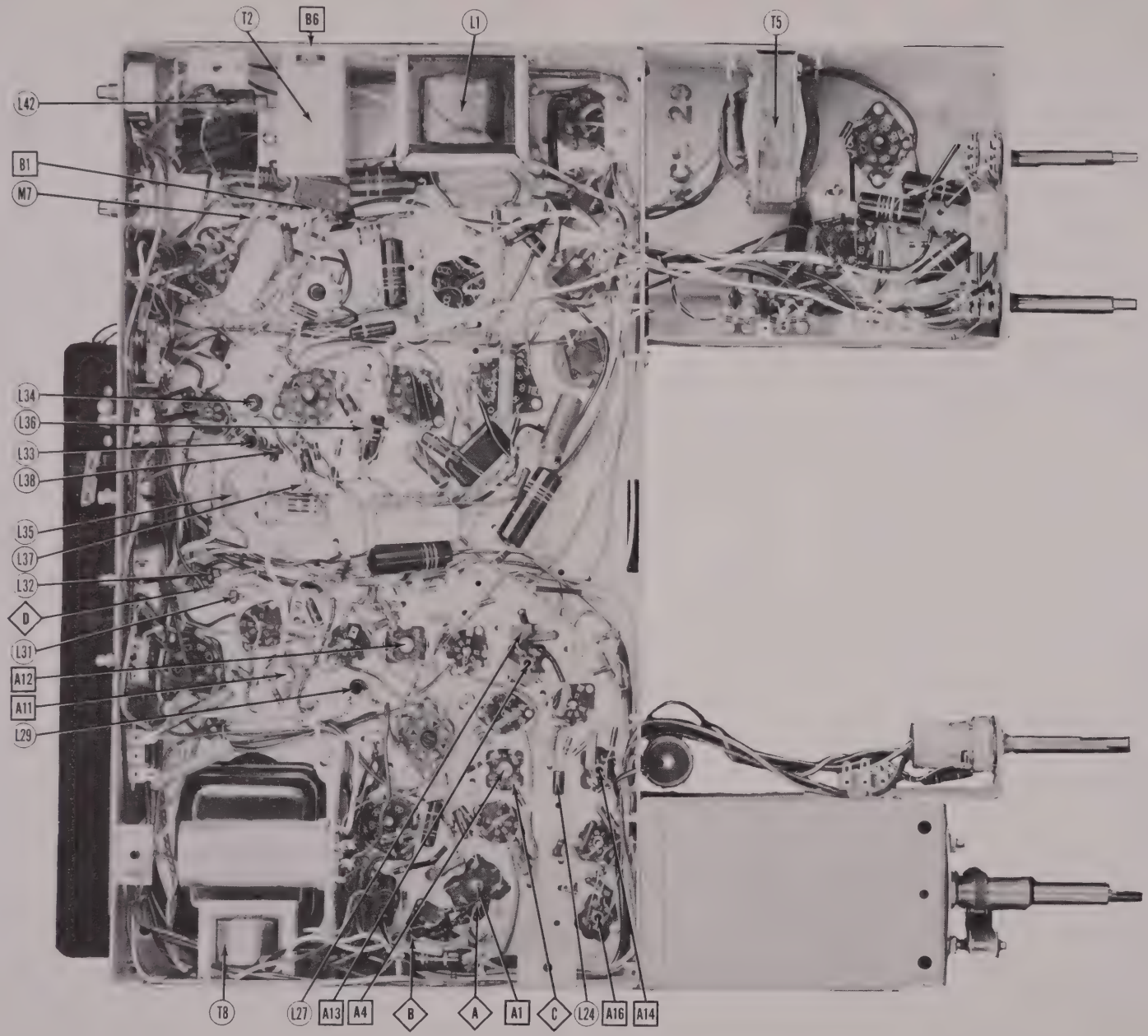


RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9T270, 9TC272, 9TC275

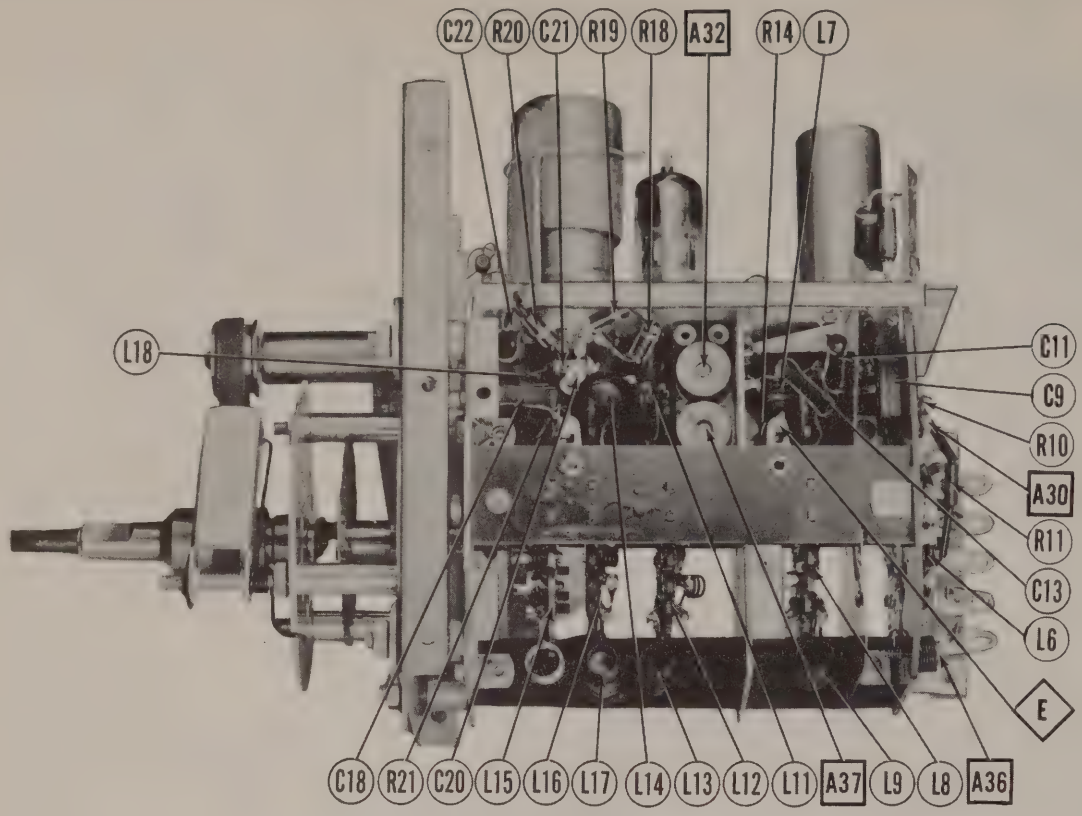
CHASSIS TOP VIEW



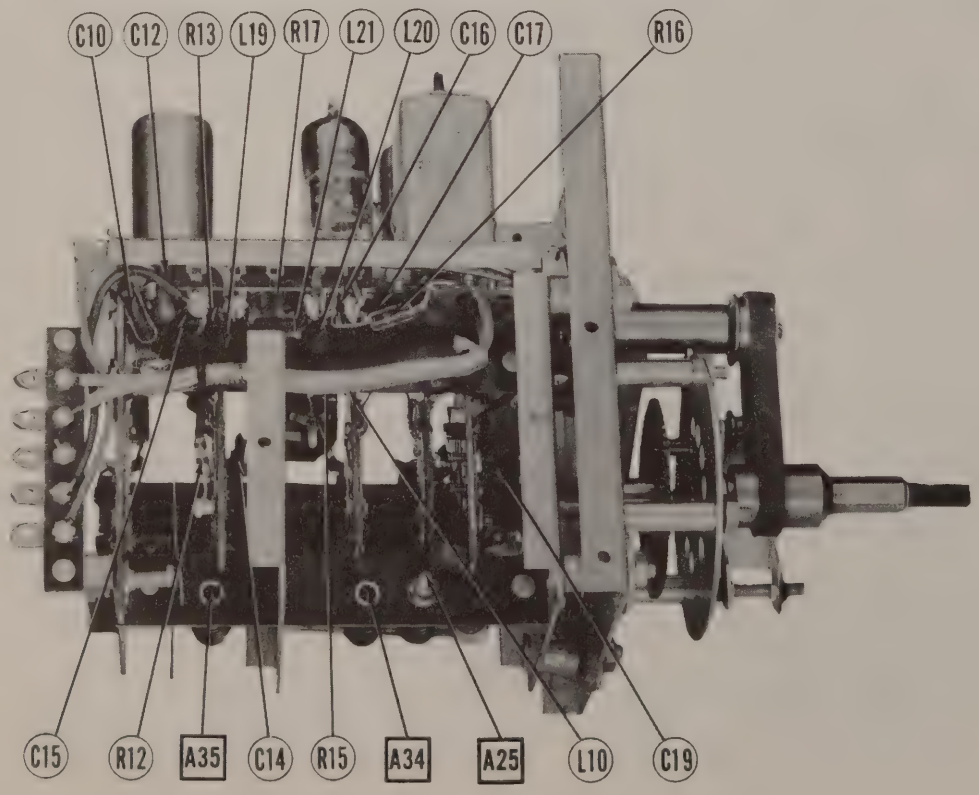
CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9T270, 9TC272, 9TC275

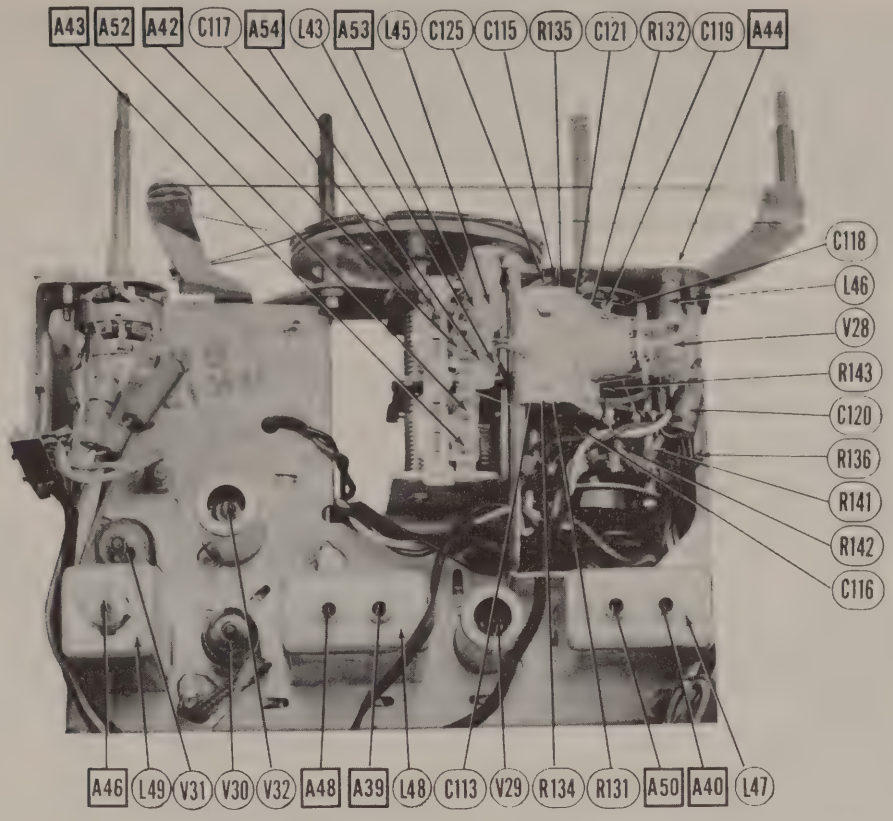
TUBE PLACEMENT CHART



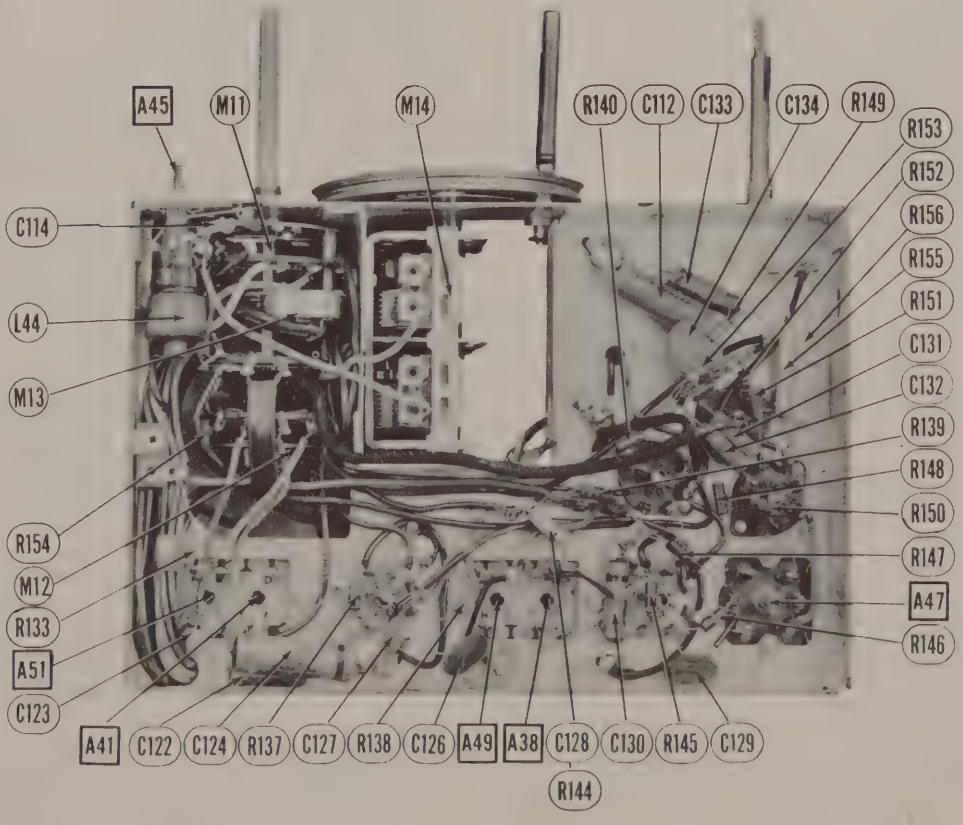
TV RF TUNER-RIGHT SIDE



TV RF TUNER-LEFT SIDE



AM-FM TUNER- TOP VIEW



AM-FM TUNER-BOTTOM VIEW

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the function selector switch to "television", (maximum counter-clockwise).
The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V20).
When complete receiver alignment is to be performed, it can most conveniently be performed in the order given.
Set the channel switch to the blank position between channels 2 and 13.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V12). Low side to chassis.	21.25MC (Unmod.)	See note under pre-alignment.	DC Probe thru 1 Meg. to Point (A) Low side to chassis.	A1, A2	Detune A1 several turns counter-clockwise. Adjust A2 for maximum deflection.
2.	.01MFD	"	"	"	DC Probe to Point (B) Common to chassis.	A1	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
3.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V11). Low side to chassis.	"	"	DC Probe thru 1 Meg. to Point (C) Common to chassis.	A3, A4	Adjust for maximum deflection.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ~ modulation and 450KC sweep. Use 120 ~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V11). Low side to chassis.	21.25MC (450KC Sweep)	21.25MC	See Note under pre-alignment	Vert. Amp. thru 33KΩ to Point (C) Low side to chassis.	A3, A4	Adjust for maximum amplitude and symmetry as per Fig 1.
2.	.01MFD	"	"	"	"	Vert. Amp. to Point (B) Low side to chassis.	A1, A2	Adjust A1 so 21.25MC occurs at center of crossover lines as per Fig 2. Adjust A2 for maximum amplitude and straightness of crossover lines. Continue with step 4.

VIDEO IF ALIGNMENT

Remove V16 from its socket.
Connect the negative lead of a 4.5 volt battery to pin 5 of the socket of V5, connect the positive lead to chassis.
Note that during video IF alignment the common lead of VTVM is at -120 volts with respect to chassis. Avoid grounding or touching the VTVM case.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.25MC (Unmod.)	See note under pre-alignment	DC Probe and common leads across R42.	A5, A6	Adjust for MINIMUM deflection.
5.	Direct	"	27.25MC	"	"	A7, A8	"
6.	Direct	"	19.75MC	"	"	A9, A10	"
7.	Direct	"	22.5MC	"	"	A11	Adjust for maximum deflection.
8.	Direct	"	24.6MC	"	"	A12	"
9.	Direct	"	22MC	"	"	A13	"
10.	Direct	"	25.9MC	"	"	A14	"

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Direct	High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	25MC (10MC Sweep)	21.95MC 24.8MC	See note under pre-alignment	Vert. Amp. to Point (D) Low side to chassis.	A15, A16	Shunt the primarys of L25, L26, L28 and L30 (A11 thru A14) with 300Ω carbon resistors. Adjust A15 and A16 for response curve similar to Fig 3 with markers as shown.
12.	Direct	"	"	21.25MC 22.1MC 25MC 25.75MC 26.5MC	"	"		Remove all 300Ω shunting resistors. Check for response similar to Fig 4 with markers as shown. If necessary retouch A11 thru A16 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	.01MFD	High side to pin 1 (Grid) of 6AU6 (V9). Low side to chassis.	4.5MC (400~ Mod.)	Not used	Any	Vert. Amp. to pin 2 (Grid) of picture tube. Low side to chassis.	A17	Adjust for minimum 400~ response on scope, If a wide band scope is not available a VTVM with suitable RF probe may be used. This trap may be adjusted for maximum vertical wedge definition while observing a test pattern from a TV station.

FIG. 1

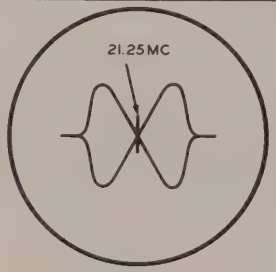


FIG. 2

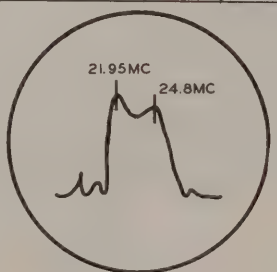


FIG. 3

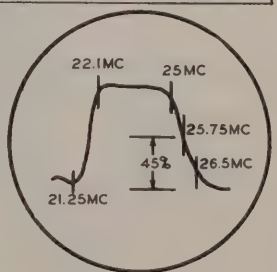


FIG. 4

TV ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

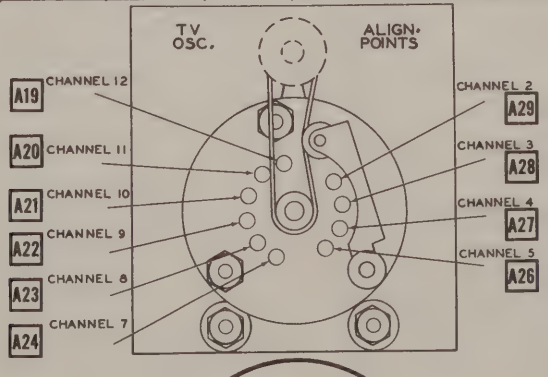
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Complete oscillator alignment may not be necessary, if all channels seem to be off frequency approximately the same amount, they may be corrected in one step using A18.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
14.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	215.75MC (Unmod.)	13	DC Probe to Point (B) Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A19	
			203.75MC	11		A20	
			197.75MC	10		A21	
			191.75MC	9		A22	
			185.75MC	8		A23	
			179.75MC	7		A24	
			87.75MC	6		A25	
			81.75MC	5		A26	
			71.75MC	4		A27	
			65.75MC	3		A28	
			59.75MC	2		A29	

ANTENNA AND RF ALIGNMENT

The antenna and RF section of this receiver is very stable and will not normally require alignment in the field.
Alignment should not be attempted unless they are definitely known to be out of alignment.
Remove the 4.5 volt battery used during video IF alignment and replace it with 3.5 volts battery.
Remove the first video IF Amp. (V4).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω carbon res.	Across antenna terminals with 120Ω in each lead.	177MC (10MC Sweep)	175.25MC 179.75MC	7	Vert. Amp. to Point (E) Low side to chassis.	A30, A31 A32, A33	Adjust for flat-topped response curve similar to Fig 5 with markers above 90%.
16.	"	"	207MC (10MC SWP)	205.25MC 209.75MC	12	"	A30	Adjust A30 for maximum response and minimum slope of top of curve as shown in Fig 6.
17.	"	"	177MC (10MC SWP)	175.25MC 179.75MC	7	"		Check for response similar to Figs. 5, 6, and 7. If markers are below 80% on any channel, make slight adjustment of A31 thru A34 with channel selector set for that channel. Recheck all high band channels to see that they have not been seriously effected.
			183MC (10MC SWP)	181.25MC 185.75MC	8			
			189MC (10MC SWP)	187.25MC 191.75MC	9			
			195MC (10MC SWP)	193.25MC 197.75MC	10			
			201MC (10MC SWP)	199.25MC 203.75MC	11			
			213MC (10MC SWP)	211.25MC 215.75MC	13			
18.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A34, A35, A36, A37	Adjust for response curve similar to Fig 6 with markers above 90%.
19.	"	"	79MC (10MC SWP)	77.25MC 81.75MC	5	"		Check for response similar to Fig 6. If markers are below 80% on any channel, make slight adjustment of A35 thru A38 with channel selector set for that channel. Recheck all low band channels to see that they have not been seriously effected.
			69MC (10MC SWP)	67.25MC 71.75MC	4			
			63MC (10MC SWP)	61.25MC 65.75MC	3			
			57MC (10MC SWP)	55.25MC 59.75MC	2			



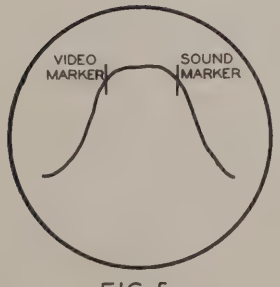


FIG. 5

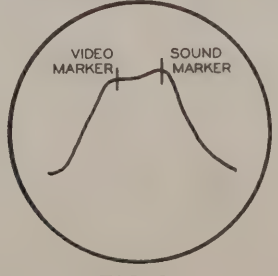


FIG. 6

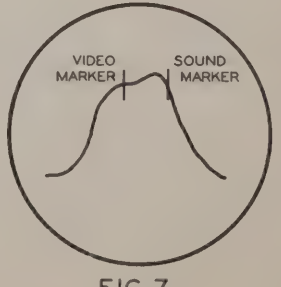


FIG. 7

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

If any lead dress is required it should be performed before beginning alignment. (See page 14). The proper order of alignment is given.

If any portion of the receiver is to be aligned, perform all steps after that portion. If the AM IF system is aligned, the FM IF portion will require alignment.

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
20	.01MFD	High side to antenna terminal. Low side to chassis.	455KC (400~ Mod.)	AM (second pos. clockwise)	Tuning gang fully closed	Across voice coil	A38, A39, A40, A41	Adjust for maximum output.
21	200MMF	"	1620KC	"	Tuning gang fully open	"	A42	"
22	200MMF	"	1400KC	"	Tune for max. output	"	A43	"
23	200MMF	"	600KC	"	600KC	"	A44, A45	Adjust for maximum output. Repeat steps 21, 22, and 23 until no further improvement can be made.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from point to ◇F◇ to chassis. The junction of these two resistors is alignment point ◇H◇ as shown on the schematic.

Alternate loading is used on the transformers during FM IF alignment, that is, the primary of each transformer is shunted with 680 ohms while the secondary of the same transformer is being adjusted. When the primary is to be adjusted, the 680Ω resistor is used to shunt the secondary. This process is repeated for each transformer.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
24	.01MFD	High side to pin 1 (Grid) of 6AU6 (V30). Low side to chassis.	10.7MC (Unmod.)	FM (third position CW)	Tuning gang fully open	DC Probe to Point ◇F◇ Common to chassis.	A46	Adjust for maximum deflection.
25	.01MFD	"	"	"	"	DC Probe to Point ◇G◇ Common to Point ◇H◇	A47	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
26	.01MFD	"	"	"	"	DC Probe to Point ◇F◇ Common to chassis.	A48, A49, A50, A51	Use alternate loading as explained above. Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60 ~ modulation and 450KC sweep. Use 120 ~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
24	Direct	High side to ungrounded tube shield floating over convertor tube (V28). Low side to chassis.	10.7MC (450KC Sweep)	FM (third pos. CW)	Point of non-interference	Vert. Amp. to Point ◇F◇ Low side to chassis.	A46, A48, A49, A50, A51	Disconnect stabilizer capacitor (C112). Adjust for maximum amplitude and symmetry as per Fig 9.
25	"	"	"	"	"	Vert. Amp. to Point ◇H◇ Low side to chassis.	A47, A46	Reconnect capacitor (C112). Adjust A47 so 10.7MC occurs at center of crossover lines as per Fig 10. Slightly retouch A46 for maximum amplitude and straightness of crossover lines. Continue with step 27.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
27	270Ω carbon res.	High side thru 270Ω to ungrounded antenna terminal. Low side to chassis.	106MC (Unmod.)	FM	106MC	DC Probe to Point ◇F◇ Low side to chassis.	A52, A53	Set A52 to maximum capacity. Expand or compress turns of A53 for maximum deflection, then adjust A52 for maximum deflection.
28	"	"	90MC	"	Tune for max. deflection.	"	A54	Expand or compress coil turns for maximum deflection. Repeat steps 27 and 28 until no further improvement can be made.

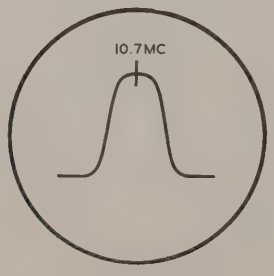


FIG. 9

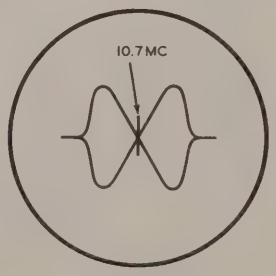


FIG. 10

AM-FM TUNER SCHEMATIC
IF - 455KC AM
IF - 10.7MC FM
SWITCH SEQUENCE
1. TV
2. AM
3. FM
4. PHONO
SWITCH SHOWN IN TV POSITION
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1950

RCA VICTOR MODELS 8T270, 8TC270, 8TC271, 8TK320, 9T270, 9TC272, 9TC275

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	-.3VDC	0V.	0V.	6.3VAC	85VDC	110VDC	0V.		
V 2	6AG5	0V.	0V.	0V.	6.3VAC	120VDC	110VDC	0V.		
V 3	6J6	60VDC	60VDC	6.3VAC	0V.	§-3.1VDC	§-2.8VDC	.2VDC		
V 4	6AG5	-2.5VDC	.2VDC	0V.	6.3VAC	100VDC	100VDC	.2VDC		
V 5	6AG5	0V.	.6VDC	6.3VAC	0V.	105VDC	105VDC	.6VDC		
V 6	6AG5	-1.8VDC	.3VDC	0V.	6.3VAC	50VDC	100VDC	.3VDC		
V 7	6AG5	0V.	1.2VDC	6.3VAC	0V.	200VDC	115VDC	1.2VDC		
V 8	6AL5	¶0V.	●-30VDC	0V.	6.3VAC	●0V.	0V.	¶-1.1VDC		
V 9	6AU6	††-2.4VDC	††.4VDC	0V.	6.3VAC	††65VDC	††155VDC	††.4VDC		
V 10	6K6GT	0V.	0V.	¶155VDC	¶250VDC	¶65VDC	¶65VDC	6.3VAC	¶75VDC	
V 11	6AU6	0V.	0V.	0V.	6.3VAC	105VDC	105VDC	.8VDC		
V 12	6AU6	-.4VDC	0V.	0V.	6.3VAC	115VDC	55VDC	0V.		
V 13	6AL5	0V.	-.1VDC	1.4VAC	6.3VAC	.1VDC	0V.	0V.		
V 14	6AV6	-.5VDC	0V.	0V.	6.3VAC	-.2VDC	-.2VDC	85VDC		
V 15	6K6GT	0V.	0V.	¶290VDC	¶310VDC	¶0V.	¶350VDC	6.3VAC	¶23VDC	
V 16	6SN7GT	¶-24VDC	¶100VDC ¶400VDC	¶0V.	¶70VDC	¶120VDC	¶75VDC	0V.	6.3VAC	
V 17	6SN7GT	▲17VDC	▲105VDC	▲25VDC	▲19VDC	▲110VDC	▲26VDC	0V.	6.3VAC	
V 18	6SN7GT	●-1.8VDC	●135VDC	●0V.	●-30VDC	●260VDC	●1.1VDC	6.3VAC	0V.	
V 19	6K6GT	0V.	6.3VAC	¶320VDC	¶320VDC	¶0V.	¶24VDC ¶40VDC	0V.	¶25VDC ¶41VDC	
V 20	6SN7GT	¶-11VDC	¶125VDC	¶-18VDC	¶-50VDC	¶205VDC	¶0V.	0V.	6.3VAC	
V 21	6BG6G	¶370VDC	0V.	¶18VDC	¶0V.	¶0V.	¶18VDC	6.3VAC	¶310VDC	TOP CAP *
V 22	5V4G	0V.	380VDC	0V.	265VDC	0V.	265VDC	0V.	380VDC	
V 23	1B3GT	* DO NOT MEASURE								
V 24	1B3GT	* DO NOT MEASURE								
V 25	5U4G	0V.	280VDC	0V.	380VAC	0V.	380VAC	0V.	280VDC	
V 26	5U4G	0V.	280VDC	0V.	380VAC	0V.	380VAC	0V.	280VDC	
V 27	16AP4	0V.	-33VDC	PIN 10 360VDC	PIN 11 44VDC	PIN 12 6.3VAC				
♦ V28A	6J6	105VDC	100VDC	0V.	6.3VAC	§-9.5VDC	0V.	0V.		
‡ V28B	6J6	90VDC	65VDC	0V.	6.3VAC	§-5.8VDC	0V.	0V.		
♦ V29	6BA6	-.1VDC	0V.	0V.	6.3VAC	185VDC	105VDC	.6VDC		
‡ V30	6AU6	0V.	0V.	0V.	6.3VAC	175VDC	140VDC	1.1VDC		
‡ V31	6AL5	.1VDC	-.5VDC	6.3VAC	0V.	-.2VDC	0V.	-.2VDC		
♦ V32	6AV6	0V.	0V.	6.3VAC	0V.	-.3VDC	-.3VDC	0V.		

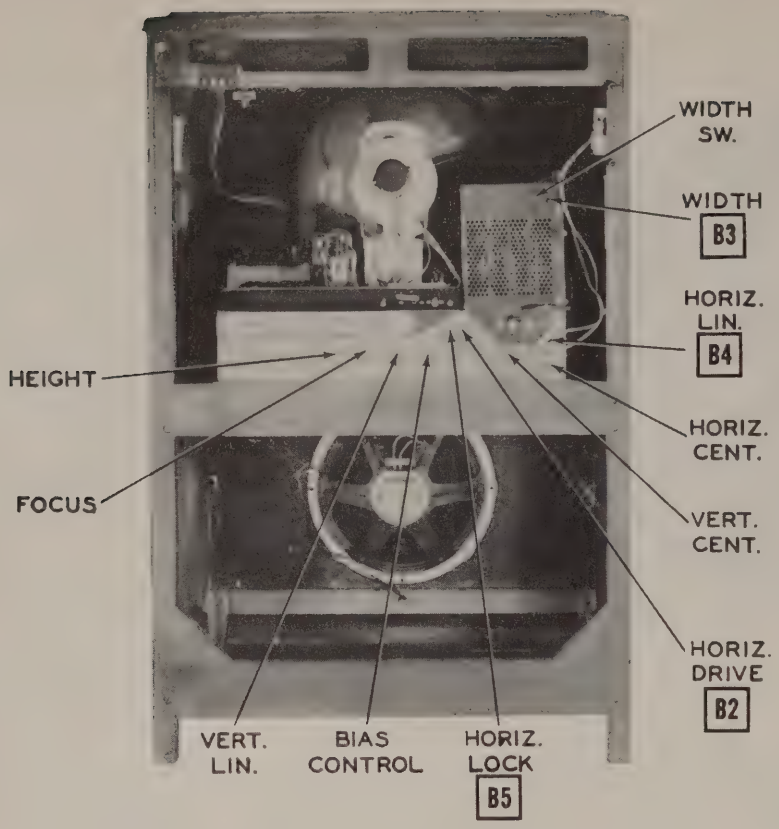
§ TAKEN WITH VACUUM TUBE VOLTMETER.
* DO NOT MEASURE.
†† MEASURED FROM CENTER TAP OF R7.
▲ MEASURED FROM JUNCTION OF R77 AND R81.
¶ MEASURED FROM PIN 6 OF V20.
♦ TAKEN IN AM POSITION.
‡ TAKEN IN FM POSITION.
● MEASURED FROM PIN 6 OF V8.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	400KΩ	0Ω	0Ω	.1Ω	†4KΩ	†1.5KΩ	0Ω		
V 2	6AG5	100KΩ	0Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	0Ω		
V 3	6J6	†12.5KΩ	†12.5KΩ	.1Ω	0Ω	100KΩ	100KΩ	47Ω		
V 4	6AG5	13KΩ	68Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	68Ω		
V 5	6AG5	10KΩ	68Ω	.1Ω	0Ω	†2.4KΩ	†2.4KΩ	68Ω		
V 6	6AG5	12KΩ	39Ω	0Ω	.1Ω	†8KΩ	†2.2KΩ	39Ω		
V 7	6AG5	.1Ω	150Ω	.1Ω	0Ω	†8KΩ	†2.2KΩ	150Ω		
V 8	6AL5	¶ 10Ω	4 Meg.	0Ω	.1Ω	●0Ω	0Ω	¶4.7KΩ		
V 9	6AU6	¶4.7KΩ	¶82Ω	0Ω	.1Ω	●5KΩ	†4KΩ	¶82Ω		
V 10	6K6GT	Inf.	0Ω	†9KΩ	†1.2KΩ	●5KΩ	●15KΩ	.1Ω	¶3.5KΩ	
V 11	6AU6	0Ω	0Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	82Ω		
V 12	6AU6	22KΩ	0Ω	0Ω	.1Ω	† 2.2KΩ	†18KΩ	0Ω		
V 13	6AL5	0Ω	100KΩ	2Ω	.1Ω	200KΩ	0Ω	100KΩ		
V 14	6AV6	10 Meg.	0Ω	0Ω	.1Ω	400KΩ	400KΩ	†330KΩ		
V 15	6K6GT	Inf.	0Ω	†2.5KΩ	†2KΩ	470KΩ	†380Ω	.1Ω	¶800Ω	
V 16	6SN7GT	¶ 3 Meg.	# 1.6Meg. # 300KΩ	¶0Ω	1.1 Meg.	68KΩ	¶1.8KΩ	0Ω	.1Ω	
V 17	6SN7GT	●63KΩ	†25KΩ	180KΩ	●15KΩ	†9KΩ	100KΩ	0Ω	.1Ω	
V 18	6SN7GT	1 Meg.	†12KΩ	●0Ω	4 Meg.	†380Ω	● 6.8KΩ	.1Ω	0Ω	
V 19	6K6GT	Inf.	.1Ω	†2KΩ	†2KΩ	¶2.2 Meg.	¶15KΩ ¶10KΩ	0Ω	¶6KΩ ¶1.2KΩ	
V 20	6SN7GT	¶900KΩ	#150KΩ	¶300KΩ	¶250KΩ	#110KΩ	¶0Ω	0Ω	.1Ω	
V 21	6BG6G	†3.3KΩ	0Ω	¶150Ω	¶0Ω	¶1 Meg.	¶150Ω	.1Ω	†9KΩ	TOP CAP # 130Ω
V 22	5V4G	Inf.	140KΩ	Inf.	†55Ω	Inf.	†55Ω	Inf.	140KΩ	
V 23	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #160Ω
V 24	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP Inf.
V 25	5U4G	Inf.	5KΩ	Inf.	¶17.5Ω	Inf.	¶16Ω	Inf.	5KΩ	
V 26	5U4G	Inf.	5KΩ	Inf.	¶17.5Ω	Inf.	¶16Ω	Inf.	5KΩ	
V 27	16AP4	0Ω	¶1.2 Meg.	PIN 10 #56KΩ	PIN 11 50KΩ	PIN 12 .1Ω				
♦ V28A	6J6	†27KΩ	†15KΩ	0Ω	.1Ω	18KΩ	6.5 Meg.	0Ω		
‡ V28B	6J6	†27KΩ	†15KΩ	0Ω	.1Ω	18KΩ	6.5 Meg.	0Ω		
♦ V29	6BA6	2.5 Meg.	0Ω	0Ω	.1Ω	†1000Ω	†27KΩ	68Ω		
‡ V30	6AU6	.2Ω	0Ω	0Ω	.1Ω	†1.6KΩ	†16KΩ	120Ω		
‡ V31	6AL5	3.3KΩ	40KΩ	.1Ω	0Ω	Inf.	0Ω	Inf.		
♦ V32	6AV6	0Ω	0Ω	.1Ω	0Ω	350KΩ	2.6 Meg.	0Ω		

† MEASURED FROM PIN 8 OF V25.
‡ MEASURED FROM PIN 8 OF V22.
¶ MEASURED FROM PIN 6 OF V20.
● MEASURED FROM PIN 5 OF V8.
♦ TAKEN IN AM POSITION.
‡ TAKEN IN FM POSITION.

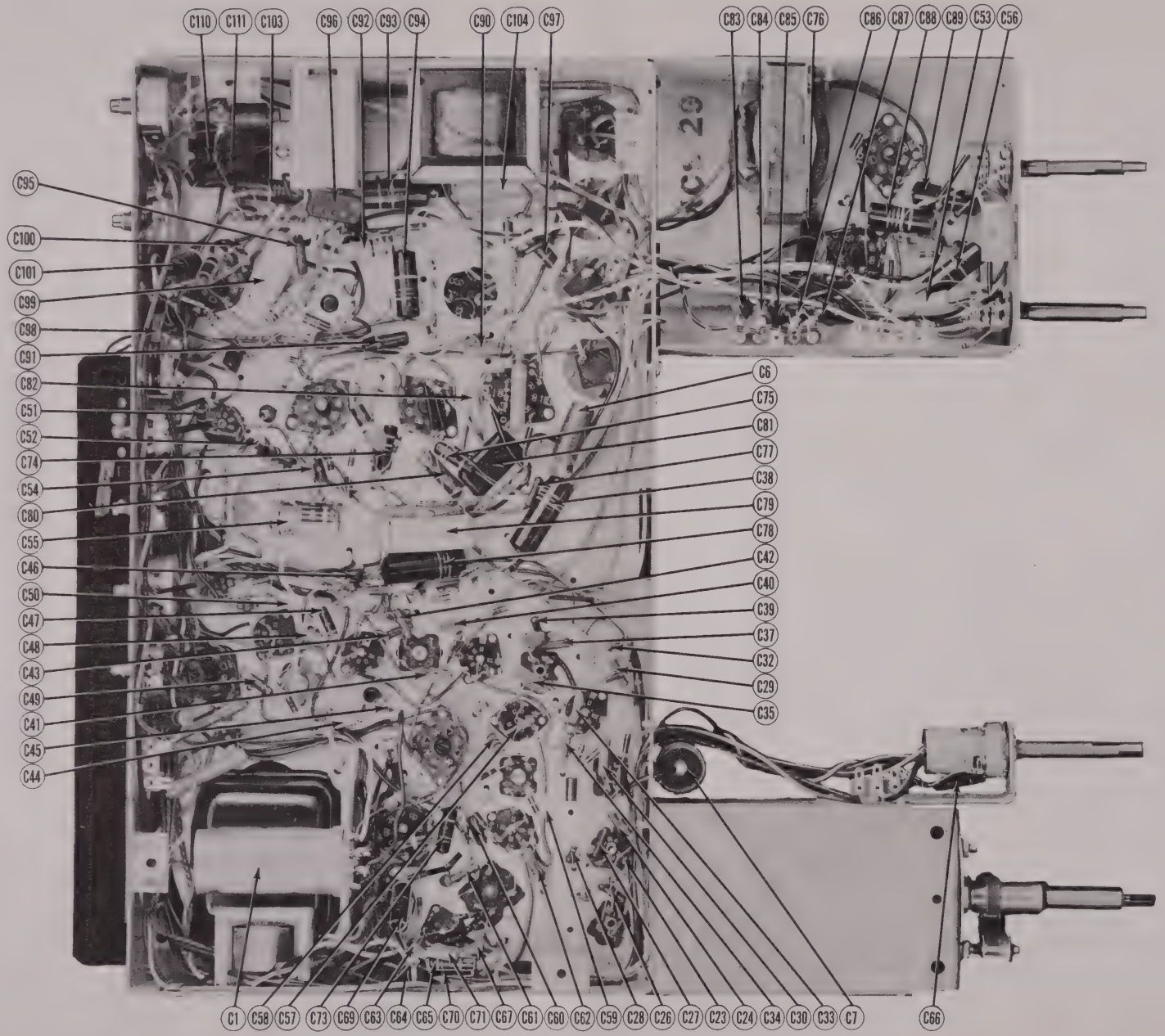
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



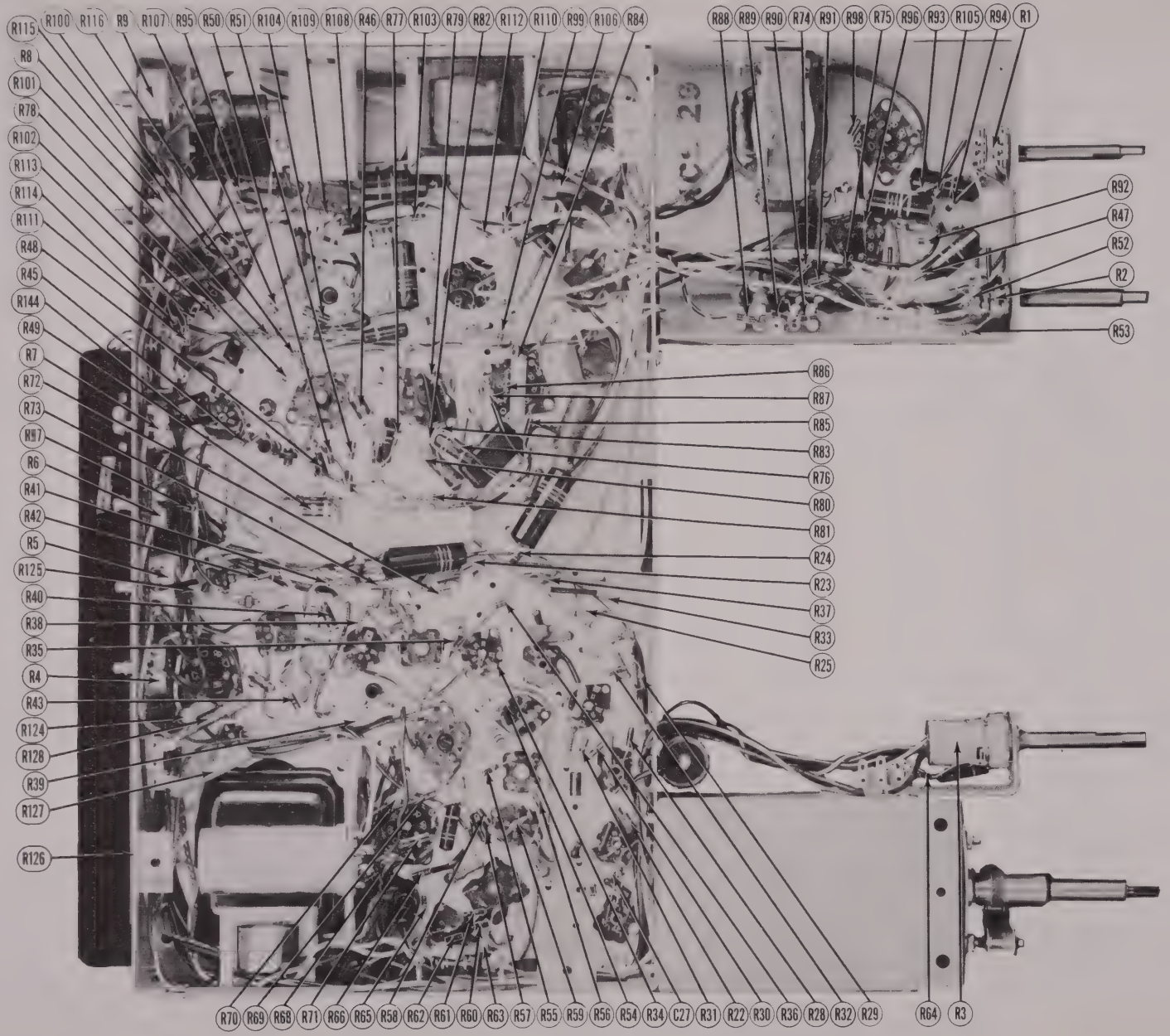
CABINET–REAR VIEW

CRITICAL LEAD DRESSING

1. The ground bus from pin 2 and the center shield of V12 socket should not be shortened or rerouted.
2. Dress the body of R62 as close to tube pin as possible.
3. Do not change the dress of the filament leads or the by-pass capacitors in the picture or sound IF circuits. The filament leads between V12, V13 and V14 should be down against the chassis and away from grid or plate leads.
4. Dress all leads crossing the IF circuits close to the chassis. and held so they cannot move and change alignment.
5. If it is necessary to replace any of the 1500MMF capacitors in the picture IF circuit, the lead length must be kept as short as possible.
6. Picture IF coupling capacitors C30, C35, C41 and C48 should be up and away from the chassis and should be clear of the picture IF transformer adjustments by at least $\frac{1}{4}$ inch. If the dress of any of these capacitors is changes, the IF alignment should be rechecked.
7. Leads to L31 and L32 must be as short as possible.
8. Dress peaking coils L34, L35, L36, L37 and L38 up and away from the chassis.
9. Dress R13 away from L38.
10. Dress C63 and V13 tube pins 5 and 6 with leads not exceeding 3/8 inch.
11. Dress the blue lead from pin 5 of V14 down against the chassis and under two shielded leads.
12. Dress C55 and C54 up and away from the chassis.
13. Dress the yellow lead from the picture control away from the chassis. Dress the yellow lead from pin 8 of V9 away from the chassis.
14. Dress the green lead from pin 8 of V10 away from the chassis.
15. Dress R101, R100, R104 and R102 up and away from the chassis.
16. The leads to the volume control should be dressed down against the chassis and away from V11 and V12.
17. Dress the yoke red horizontal deflection lead under the clips of the fixed H. V. shield.
18. Dress the green lead from C106 close to the chassis and away from the red lead connected to T4 .
19. Insert the red lead into T4 from the top of the terminal.
20. All soldered connections in the high voltage compartment should be free of sharp points.
21. Contact between the RF oscillator frequency adjustment screws and the oscillator coils or channel switch eyelets must be avoided.



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

BLOCK DIAGRAM

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		RCA PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Mixer	6AG5	6AG5	7BD	
V3	Oscillator	6J6	6J6	7BF	
V4	1st Video IF	6AG5	6AG5	7BD	
V5	2nd Video IF	6AG5	6AG5	7BD	
V6	3rd Video IF	6AG5	6AG5	7BD	
V7	4th Video IF	6AG5	6AG5	7BD	
V8	Video Det.-Sync. Limiter	6AL5	6AL5	6BT	
V9	Video Amp.	6AU6	6AU6	7BK	
V10	Video Output	6K6GT	6K6GT	7S	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Limiter	6AU6	6AU6	7BK	
V13	Disc.	6AL5	6AL5	6BT	
V14	AF Amp.-Bias Clamper	6AV6	6AV6	7BT	
V15A	Audio Output	6K6GT	6K6GT	7S	
B	Audio Output	6V6GT	6V6GT	7AC	
V16	AGC Amp.-Vert. Osc.-Vert. Disch.	6SN7GT	6SN7GT	8BD	
V17	AGC Rectifier-1st Sync. Sep.	6SN7GT	6SN7GT	8BD	
V18	Sync. Amp.-2nd Sync. Sep.	6SN7GT	6SN7GT	8BD	
V19	Vert. Output	6K6GT	6K6GT	7S	
V20	Hor. AFC-Osc.	6SN7GT	6SN7GT	8BD	
V21	Hor. Output	6BG6G	6BG6G	5BT	
V22	Damper	5V4G	5V4G	5L	
V23	HV Rectifier	1B3GT	1B3GT	3C	
V24	HV Rectifier	1B3GT	1B3GT	3C	
V25	LV Rectifier	5U4G	5U4G	5T	
V26	LV Rectifier	5U4G	5U4G	5T	
V27	Picture Tube	16AP4	16AP4	12D	
V28	Converter	6J6	6J6	7BF	Model 8TK320 only.
V29	1st IF Amp.	6BA6	6BA6	7BK	Model 8TK320 only.
V30	FM 2nd IF Amp.	6AU6	6AU6	7BK	Model 8TK320 only.
V31	Ratio Det.	6AL5	6AL5	6BT	Model 8TK320 only.
V32	DET.-AVC	6AV6	6AV6	7BT	Model 8TK320 only.

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C1A	40	450	73582	AFH82J16E	UP9CJ915		TVL-25	▲ Filter
B	10	450						■ Output Decoupling
C	80	200						▲ Filter
C2A	40	450	73583	AFH8J1810D	UP9CJ913		TVL-27	▲ Filter
B	90	150						■ Vert. Output Cath. Bypass
C	50	150						▲ Filter
C3A	60	450	73581	AFH1222J4D	UP9DJ914		TVL-68	▲ Filter
B	10	450						■ Decoupling
C	10	450						▲ Decoupling
D	20	150						Output Cathode Bypass
C4A	250	10	71436	AF50R200S	UP7BJ808		TVL-66	▲ Hor. Cent. Cont. Bypass
B	1000	6						▲ Vert. Cent. Cont. Bypass
C5A	40	450	71432	AFH882J	UP9CJ897		TVL-30	▲ Filter
B	40	450						■ Filter
C	10	450						▲ Vert. Output Decoupling
C6	5	50	74106	PRS150/4	BR550		TVA-13	AGC Filter
C7	40	400	74266	PRS450/40	BR4045		TVA-24	Decoupling
C8	18		54207					Fixed Trimmer
C9	270	500	73091			GP2K-270		RF Coupling
C10	1500		71501			GP2L-0015		AGC Filter
C11	1500		71501			GP2L-0015		RF Screen Bypass
C12	1500		71501			GP2L-0015		RF Bypass
C13	1500		71501			GP2L-0015		RF Coupling
C14	5000		73473			811-005	29C1	RF Coupling
C15	1500		71501			GP2L-0015		RF Fil. Bypass
C16	1500		71501			GP2L-0015		Conv. Fil. Bypass
C17	1500		71501			GP2L-0015		Conv. Decoupling
C18	1500		71501			GP2L-0015		RF Bypass
C19	10		53511			NPOK-10		Fixed Trimmer
C20	5		74035			NPOK-5		Osc. Feedback
C21	5		74035			NPOK-5		Osc. Feedback
C22	1500		71501			GP2L-0015		Osc. Fil. Bypass
C23	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	RF Bypass
C24	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	AGC Filter
C25	82							Fixed Trimmer
C26	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	AGC Filter
C27	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	1st V. IF Decoupling
C28	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	1st V. IF Fil. Bypass
C29	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	Decoupling
C30	270	1000	73091	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C31	47			1469-00005	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C32	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	Decoupling
C33	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	2nd V. IF Decoupling
C34	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	2nd V. IF Fil. Bypass
C35	33	1000	74105	1468-00004	5W5Q4	GP1K-33	1FM-44	IF Coupling
C36	47			1469-00005	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C37	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	AGC Filter
C38	.47	200	73787	P288-47	GT2P5		TC-5	AGC Filter
C39	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	Decoupling
C40	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	3rd V. IF Decoupling
C41	270	1000	73091	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C42	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	RF Bypass
C43	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	4th V. IF Screen Bypass
C44	82		64062	1468-0001	5W5T1	GP1K-100	1FM-31	4th V. IF Cath. Bypass

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	RCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C45	75			1469-000075		NPOM-75		Fixed Trimmer
C46	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	RF Bypass
C47	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	4th V. IF Decoupling
C48	270	1000	73091	1468-00025	5W5T25	GP2K-270	1FM-325	IF Coupling
C49	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	RF Bypass
C50	6		74182	1468-00001	5W5Q1	NPOK-6.8	MS-41	V. Diode Filter
C51	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	1st V. Amp. Cath. Bypass
C52	47			1469-00005	5R5Q5	NPOM-50	MS-45	Fixed Trimmer
C53	.0039	600	73796	P688-004	GT6D4	GP2M-0047	TM-24	2nd V. Amp. Cath. Bypass
C54	120		73921	1468-00015	5W5T15	GP2K-120	1FM-315	Video Coupling
C55	.047	400	73553	P488-047	GT4S5		TM-15	Video Coupling
C56	.1	400	73551	P488-1	GT4P1		TM-1	Pic. Tube Cath. Dec.
C57	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	1st S. IF Cath. Bypass
C58	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	1st S. IF Decoupling
C59	100		39396	1468-0001	5W5T1	GP1K-100	1FM-31	Limiter Grid Filter
C60	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	Limiter Screen Bypass
C61	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	Limiter Plate Dec.
C62	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	Limiter Fil. Bypass
C63	270		73922	1468-00025	5W5T25	GP2K-270	1FM-325	Diode Load Cap.
C64	270		73922	1468-00025	5W5T25	GP2K-270	1FM-325	S. Discr. Fil. Bypass
C65	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	Audio Coupling †
C66	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	Tone Compensation §
C67	.01	400	73561	P488-01	GT4S1	GP2-335-01	TM-11	Audio Coupling
C68	.001	600	73801	P688-001	GT6D1	GP2L-001	TM-21	De-emphasis #
C69	.01	1000	73565	P1088-01	GT16S1		MB-11	Audio Coupling
C70	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	Tone Compensation
C71	120	500	39630	1468-00015	5W5T15	GP2K-120	1FM-315	Tone Compensation
C72	.0068	400	73789	P488-0068	GT6D6	GP2-334-0068	TM-26	Tone Compensation #
C73	.0033	600	73795	P688-0033	GT6D3	GP2M-0033	TM-23	Output Plate Bypass ♦
C74	.01	400	73561	P488-01	GT4S1	GP2-335-01	TM-11	AGC Rect. Cath. Bypass
C75	.0033	600	73795	P688-0033	GT6D3	GP2M-0033	TM-23	AGC Coupling
C76	.1	200	73784	P288-1	GT2P1		TM-1	AGC Amp. Grid Filter
C77	1500		71501	1467-0015	1W5D15	GP2L-0015	1FM-215	AGC Filter
C78	.47	200	73787	P288-47	GT2P5		TC-5	AGC Filter
C79	.22	200	73560	P488-22	GT2P25		TC-2	1st Sync. Sep. Cath. Bypass
C80	.001	600	73801	P688-001	GT6D1	GP2L-001	TM-21	Sync. Coupling
C81	.047	600	73553	P688-047	GT6S5		TM-15	Sync. Coupling
C82	100	500	39628	1468-0001	5W5T1	GP1K-100	1FM-31	Sync. Coupling
C83	390	500	39642	1468-0004	5W5T4	GP2K-390	1FM-34	2nd Sync. Sep. Cath. Bypass
C84	.0022	600	73803	P688-0022	GT6D2	GP2M-0022	TM-22	Integrator Net.
C85	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	Integrator Net.
C86	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	Integrator Net.
C87	.0047	600	73550	P688-0047	GT6D5	GP2M-0047	TM-25	Vert. Sync. Coupling
C88	.047	600	73592	P688-047	GT6S5		TM-15	Vert. Discharge
C89	.1	400	73551	P488-1	GT4P1		TM-1	Vert. Sweep Coupling
C90	180	500	73102			GP2K-180		Hor. Sync. Coupling
C91	.0022	600	73803	P688-0022	GT6D2	GP2M-0022	TM-22	Hor. Sync. Coupling
C92	.022	400	73562	P488-022	GT6S2		TM-12	AFC Filter
C93	.22	400	73794	P488-22	GT4P25		TC-2	AFC Filter
C94	.047	600	73592	P688-047	GT6S5		TM-15	AFC Plate Bypass
C95	180	1000	73102					Hor. Osc. Grid Cap.
C96	.01	400	73594	P488-01	GT4S1	GP2-335-01	TM-11	Fixed Trimmer
C97	.0022	600	73595	P688-0022	GT6D2	GP2M-0022	TM-22	Hor. Discharge
C98	560	500	73091			GP2K-560		Hor. Sweep Coupling
C99	.047	1000	73597	P1088-047	GT16S5		TR-15	Hor. Output Screen Bypass
C100	270	1000	73091					Hor. Output Screen Bypass
C101	.22	400	74250	P488-22	GT4P25		TC-2	Hor. Output Cath. Bypass
C102	.047	400	73553	P488-047	GT4S5		TM-15	Bias Filter #
C103	.033	1000	73596	P1088-033				Damper Filter
C104	.05	1000	73597	P1088-05	GT16S5		TR-15	Damper Filter
C105	.022	400	73562	P488-022	GT4S2		TM-12	Fixed Trimmer ¶
C106	5	1500	72809					Hor. Feedback
C107	500	20000	74153			410-500		Voltage Doubler Cap.
C108	500	20000	74153			410-500		HV Filter
C109	250	20000	74154					HV Filter
C110	.01	400	73561	P488-01	GT4S1		TM-11	Line Filter
C111	.01	400	73561	P488-01	GT4S1		TM-11	Line Filter
C112	2	50	73747	PRS150/4	BBR2-50T		TVA-12	Stabilizing Cap.
C113	1500		73748	1467-0015	1W5D15	GP2L-0015	1FM-215	RF Coupling
C114	100		39396	1469-0001	5R5T1	N750L-100	MS-31	Fixed Trimmer
C115	68		33103			GP1K-68		Osc. Feedback
C116	15		31353			GP1K-15		Osc. Grid Cap.
C117	56		73867					Fixed Trimmer
C118	2		73866					Fixed Trimmer
C119	150		48125	1468-00015	5W5T15	GP2K-150	1FM-315	Osc. Grid Cap.
C120	.01	400	71925	P488-01	GT4S1	GP2-335-01	TM-11	Osc. Plate Decoupling
C121	47		39042	1468-00005	5W5Q5	GP1K-47	1FM-45	Conv. Filament Bypass
C122	.005	400	71553	P688-005	GT6D5	GP2M-005	TM-25	Conv. Plate Decoupling
C123	100		39396	1469-0001	5R5T1	N750L-100	MS-31	Fixed Trimmer
C124	.05	200	54859	P288-05	GT2S5		TM-15	AVC Filter
C125	5000		73473	1467-005	1D5D5	811-005	29C1	AVC Filter
C126A	4000		74009	1467-004	1D5D4	811-005	36C2	1st IF Screen Bypass
B	4000			1467-004	1D5D4	811-005		1st IF Decoupling
C127	5000		73473	1467-005	1D5D5	811-005	29C1	1st IF Fil. Bypass
C128A	200		*	1468-0002	5W5T2	GP2K-200	1FM-32	Diode RF Filter
B	200			1468-0002	5W5T2	GP2K-200	1FM-32	Diode RF Filter
C129A	4000		74009	1467-004	1D5D4	811-005	36C2	2nd IF Screen Bypass
B	4000			1467-004	1D5D4	811-005		2nd IF Decoupling
C130	.005	400	71553	P688-005	GT6D5	GP2M-005	TM-25	2nd IF Cath. Bypass
C131	330	500	39640	1468-0003	5W5T3	GP2K-330	1FM-325	Diode Load Cap. †
C132	330	500	39640	1468-0003	5W5T3	GP2K-330	1FM-335	Diode Load Cap. †
C133	.005	400	71553	P688-005	GT6D5	GP2M-005	TM-25	De-emphasis
C134A	4000		74009	1467-004	1D5D4	811-005	36C2	DAVC Decoupling
B	4000			1467-004	1D5D4	811-005		DAVC Decoupling

† Some models use .0022MFD in this application.
§ Model 8TK320 uses .015MFD in this application.
# Used only in model 8TK320.
♦ Some models use .0047MFD in this application.
¶ Not used in all models.
* Items C128A, C128B and R144 are combined into one unit, obtainable under MFGR'S #74011.
† When either item C131 or C132 are replaced, replace both with capacitors of equal value.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	1 Meg	½		B11-137 §		Vert. hold control, front
B	50KΩ	½	72734	B11-123 §	P970111-24	Horiz. hold control, rear
C	Shaft End			E187 §		Attach per instructions in "Concentrikit"
R2A	50KΩ	½		B11-123 §		Brightness control, front
B	10KΩ	½	74047	B17-116 §	P970913-11	Contrast control, rear
C	Shaft End			E187 §		Attach per instructions in "Concentrikit".
R3A	500KΩ	½		B13-133 §		Tone control, front
B	1 Meg	½	74048	B13-137X §	P970913-10	Volume control, rear, tapped at 200KΩ
C	Shaft End			E187 §		Attach per instructions in "Concentrikit".
R3A	2.5 Meg	½	74359			Tone control, See note 1
B	1.5 Meg	½				Volume control and switch tapped at 500KΩ and 250KΩ
R4	2.5 Meg.	½	71440	Q11-239	M-84-S	Height control
R5	2250Ω	4	72735		10-2500	Focus control, Wire Wound
R6	5000Ω	½	71441	Q11-114	M-19-S	Vert. linearity control
R7	20Ω	2	74146	W-20	43-20	Video bias control, Wire Wound
R8	20Ω	2	71443	W-20X10	43-20C T	Vert. centering control, tapped at 10Ω, Wire Wound
R9	20Ω	2	74146	W-20	43-20	Horiz. centering control, Wire Wound

§ Additional parts to be used with "Concentrikit".
Note 1. Used in model 8TK320 only.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED
R10	100Ω	½		BTS-1000	RF Grid
R11	150Ω 20%	½			AGC Network
R12	2700Ω	½		BTS-2700	RF Plate Decoupling
R13	150Ω 20%	½			RF Screen Decoupling
R14	100KΩ 20%	½		BTS-100K	Series Test Point
R15	10KΩ 20%	½			Mixer Grid
R16	150Ω 20%	½			Mixer Decoupling
R17	1000Ω 20%	½		BTS-1000	Decoupling Network
R18	47Ω 20%	½			Osc. Cathode
R19	100KΩ 20%	½			Osc. Grid
R20	100KΩ 20%	½			Osc. Grid
R21	10KΩ 20%	½			Osc. Plate
R22	150Ω	½			Decoupling Network
R23	56KΩ 5%	½		BTS-56K-5%	AGC Network
R24	12KΩ 5%	½		BTS-12K-5%	AGC Network
R25	1000Ω 20%	½		BTS-1000	AGC Network
R26	10KΩ 5%	½			1st Video IF Transformer Shunt SeeNote 2
R27	68Ω	½			1st Video IF Cathode
R28	1000Ω 20%	½		BTS-1000	1st Video IF Decoupling
R29	150Ω 20%	½			Decoupling Network
R30	10KΩ 5%	½			2nd Video IF Grid
R31	68Ω	½			2nd Video IF Cathode
R32	1000Ω 20%	½		BTS-1000	2nd Video IF Decoupling
R33	150Ω 20%	½			Decoupling Network
R34	39Ω	½			3rd Video IF Cathode
R35	5600Ω 5%	½			3rd Video IF Plate
R36	1000Ω 20%	½		BTS-1000	3rd Video IF Decoupling
R37	150Ω 20%	½			Decoupling Network
R38	1000Ω 20%	½		BTS-1000	4th Video IF Decoupling
R39	150Ω	½			4th Video IF Cathode
R40	68000Ω 5%	1			4th Video IF Plate
R41	1000Ω 20%	½		BTS-1000	4th Video IF Plate Decoupling
R42	4700Ω 5%	½		BTS-4700-5%	Video Det. Diode Load
R43	10Ω 20%	½		BW-½-10	Bias Network
R44	82Ω 5%	½			Video Amp. Cathode
R45	5100Ω 5%	½			Video Amp. Plate
R46	3900Ω 5%	2		BT-2-3900-5%	Voltage Divider
R47	120Ω	½			Video Output Cathode
R48	3900Ω 5%	2		BT-2-3900-5%	Video Output Plate
R49	3900Ω 5%	2		BT-2-3900-5%	Video Output Plate
R50	2.2 Meg.	½		BTS-2.2 Meg.	Voltage Divider
R51	2.2 Meg.	½		BTS-2.2 Meg.	Picture Tube Grid
R52	47KΩ	½		BTS-47K	Voltage Divider
R53	10KΩ	½		BTS-10K	Voltage Divider
R54	82Ω	½			Sound IF Cathode
R55	1200Ω	½		BTS-1200	Sound IF Decoupling
R56	22KΩ 20%	½			Limiter Grid
R57	1000Ω 20%	½		BTS-1000	Limiter Plate Decoupling
R58	22KΩ 20%	½			Limiter Screen
R59	47KΩ 20%	½		BTS-47K	Voltage Divider
R60	100KΩ 5%	½		BTS-100K-5%	Disc. Diode Load
R61	100KΩ 5%	½		BTS-100K-5%	Disc. Diode Load
R62	22KΩ 20%	½		BTS-22K	De-emphasis
R63	5.1Ω	½	72067		Disc. Filament, Wire Wound
R64	82KΩ	½		BTS-82K	Tone Compensation See Note 3
R65	10 Meg. 20%	½		BTS-10 Meg.	AF Grid
R66	330KΩ	½		BTS-330K	AF Plate
R67	27KΩ	½		BTS-27K	Tone Compensation See Note 4
R68	470KΩ	½		BTS-470K	Output Grid
R69	100Ω 5%	½		BW-½-100-5%	Output Cathode
R70	680Ω	1		BTA-680	Output Cathode
R71	1500Ω	2		BW-2-1500	Filter
R72	360KΩ 5%	½			AGC Network
R73	4.7 Meg. 5%	1		BTA-4.7Meg. 5%	Voltage Divider
R74	18KΩ	½		BTS-18K	Bias Network
R75	1000Ω	½		BTS-1000	Bias Network
R76	1 Meg.	½		BTS-1 Meg.	AGC Amp. Grid
R77	100KΩ	½		BTS-100K	AGC Rect. Cathode
R78	10KΩ	½		BTS-10K	AGC Rect. Grid
R79	47KΩ	½		BTS-47K	1st Sync. Sep. Grid
R80	4700Ω	½		BTS-4700	AGC Rect. Plate
R81	180KΩ	½		BTS-180K	1st Sync. Sep. Cathode
R82	22KΩ	½		BTS-22K	1st Sync. Sep. Plate
R83	47KΩ	½		BTS-47K	Isolation
R84	12KΩ	2		BT-2-12K	Sync. Amp. Plate

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	RCA PART No.	IRC PART No.	
R85	1 Meg. 20%	½		BTS-1 Meg.	Sync. Amp. Grid
R86	6800Ω	½		BTS-6800	2nd Sync. Sep. Cathode
R87	3.9 Meg.	½		BTS-3.9 Meg.	2nd Sync. Sep. Grid
R88	22KΩ	½		BTS-22K	Integrator
R89	8200Ω	½		BTS-8200	Integrator
R90	8200Ω	½		BTS-8200	Integrator
R91	1.5 Meg. 5%	½		BTS-1.5Meg. 5%	Vert. Osc. Grid
R92	220KΩ	½		BTS-220K	Vert. Osc. Plate
R93	2.2 Meg.	½		BTS-2.2 Meg.	Voltage Divider
R94	100KΩ	½		BTS-100K	Voltage Divider
R95	56KΩ	½		BTS-56K	Filter
R96	2.2 Meg.	½		BTS-2.2 Meg.	Vert. Output Grid
R97	1200Ω	½		BTS-1200	Vert. Output Cathode
R98	8200Ω 5%	½		BTS-8200-5%	Vert. Peaking
R99	1000Ω 20%	½		BTS-1000	Vert. Output Decoupling
R100	820KΩ 5%	½		BTS-820K-5%	Horiz. AFC Grid
R101	150KΩ	½		BTS-150K	Horiz. AFC Cathode
R102	150KΩ 5%	1		BTA-150K-5%	Horiz. AFC Cathode
R103	8200Ω	½		BTS-8200	Horiz. AFC Filter Network
R104	2.7Meg. 5%	1		BTA-2.7Meg. 5%	Voltage Divider
R105	82KΩ	½		BTS-82K	Voltage Divider
R106	150KΩ 5%	1		BTA-150K-5%	Voltage Divider
R107	100KΩ 5%	1		BTA-100K-5%	Horiz. Osc. Grid
R108	8200Ω 5%	½		BTS-8200-5%	Horiz. Osc. Transformer Shunt
R109	22KΩ	½		BTS-22K	Horiz. Osc. Transformer Shunt
R110	100KΩ	1		BTA-100K	Horiz. Osc. Plate
R111	150KΩ	½		BTS-150K	Horiz. AFC Filter Network
R112	10KΩ	½		BTS-10K	Filter
R113	47Ω 20%	½			Parasitic Supp.
R114	1 Meg.	½		BTS-1 Meg.	Horiz. Output Grid See Note 5
R115	15Ω	2		BW-2-150	Horiz. Output Cathode
R116	5600Ω	1		BTA-5600	Horiz. Output Screen
R117	3300Ω	½		BTS-3300	Horiz. Output Screen
R118	3.9Ω	½	74156		HV Rect. Filament-Wire Wound
R119	3.9Ω	½	74156		HV Rect. Filament-Wire Wound
R120	180KΩ	2			HV Rect. Load
R121	180KΩ	2			HV Rect. Load
R122	180KΩ	2			HV Rect. Load
R123	560KΩ	½		BTS-560K	Feedback
R124	100KΩ 20%	2		BT-2-100K	Isolation
R125	470Ω	4	74197	AB-450	Focus Coil Shunt-Wire Wound
R126 A	775Ω	9.5			Voltage Divider-Wire Wound
B	550Ω	5			Voltage Divider-Wire Wound
C	350Ω	3	74155	AB-350	Bias Network-Wire Wound
D	450Ω	5		AB-450	Bias Network-Wire Wound
R127	3300Ω	10	48207	AB-3500	Bleeder Network-Wire Wound
R128	820Ω	10	74213	AB-800	Bleeder Network-Wire Wound
R129	180KΩ	½			Horiz. Output Grid See Note 4
R130	330Ω	20	74265	DG-350	Bias Network, Wire Wound -See Note 4
R131	10Ω	½			Parasitic Supp.
R132	3.9 Meg.	½		BTS-3.9 Meg.	Conv. Grid
R133	27KΩ	½		BTS-27K	Conv. Plate Decoupling
R134	18KΩ	½		BTS-18K	Osc. Grid
R135	100Ω	½			Parasitic Supp.
R136	15KΩ	½		BTS-15K	Osc. Plate Decoupling
R137	68Ω	½			1st IF Cathode
R138	27KΩ	½		BTS-27K	1st IF Screen
R139	680Ω	½		BTS-680	Decoupling
R140	22 Meg.	½		BTS-22 Meg.	Delayed AVC
R141	150KΩ	½		BTS-150K	Diode Load
R142	150KΩ	½		BTS-150K	AVC Network
R143	2.2 Meg.	½		BTS-2.2 Meg.	AVC Network
R144	47KΩ	½		BTS-47K	Diode Filter See Note 6
R145	120Ω	½			2nd FM IF Cathode
R146	15KΩ	½		BTS-15K	2nd FM IF Screen
R147	680Ω	½		BTS-680	2nd FM IF Decoupling
R148	10Ω	½			Balancing
R149	15KΩ	½		BTS-15K	De-emphasis
R150	3300Ω 5%	½		BTS-3300-5%	Ratio Det. Diode Load
R151	1200Ω	½		BTS-1200	Balancing
R152	39KΩ 5%	½		BTS-39K-5%	Ratio Det. Diode Load
R153	470KΩ	½		BTS-470K	AVC Network
R154	10KΩ	½		BTS-10K	De-emphasis
R155	.5Ω	½	74023		Filament Dropping-Wire Wound
R156	.5Ω	½	74023		Filament Dropping-Wire Wound

Note 2. Not used in all models.
Note 3. Model 8TK320 uses 27KΩ resistor in this application.
Note 4. Used in model 8TK320 only.
Note 5. Model 8TK320 uses 820KΩ resistor in this application.
Note 6. Items C128A, C128B and R144 are combined into one unit obtainable under MFGR'S Part No. 74011.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	RCA PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	PM	4Ω	73635 ②	ST-101 ⑤		⑤ Replace output transformer to match 6-8Ω voice coil.
B	PM	4Ω	74355 ③	ST-101 ⑤ MOD. P12-T	12A31A	② Used in models 9TC272 and 9TC275.
C	PM	4Ω	74169 ④	MOD. P12-T	12A31A	③ Used in model 8TK320. ④ Used in model 9T270
	CONE DIA.	V. C. DIA.				
SP2A	11 3/4"	1"	73934 ②			
B	11 3/4"	1"	73934 ③			
C	8"		73912 ④			

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC at 2.3A	760VCT .270ADC	5VAC at 6A	5VAC at 2A SEC. 4 6.3VAC at 8.9A	74143	P-8156 ⑪	P-3081	

⑪ Rewire heater circuits as required.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	DC RESISTANCE PRI.	DC RESISTANCE SEC.	RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T2	125Ω Tap at 90Ω	36Ω	73576				Hor. Osc. Trans.
T3	165Ω	1310Ω	74144	A-8121 ⑥	A-4000 ⑥	TBO-2 ⑥	Vert. Block Osc. Trans
T4	112Ω Tap at 87Ω	SEC. 1 8.4Ω Tap at .6Ω SEC. 2 0Ω SEC. 3 0Ω	74145	A-8119		TFB-4	Hor. Output Trans.
T5	521Ω	6.9Ω	73568	A-8116	A-3035 ⑦	TSO-4	Vert. Output Trans.
T6 A	13Ω		74141 ⑧	DY-1			Hor. Deflection Coil
B	64Ω						Vert. Deflection Coil
C	13.5Ω		74262 ⑨	DY-1			Hor. Deflection Coil
D	64.6Ω						Vert. Deflection Coil
T7A	420Ω		74142 ⑧				Focus Coil
B			74263 ⑨				Focus Coil

⑥ Drill one new mounting hole.
⑦ Drill new mounting holes.
⑧ Used in models 9T270, 272 and 275.
⑨ Used in model 8TK320.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE PRI.	IMPEDANCE SEC.	DC RES. PRI.	DC RES. SEC.	RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T8A	8KΩ	4Ω	650Ω	.5Ω	74600 ⑩	A-3849	A-2931 ⑥	RO-13 ⑥	⑥ Drill one new mounting hole.
B	5.8KΩ	4.2Ω	500Ω	.26Ω	71419 ⑪	A-3877	A-2930	RO-9 ⑥	⑩ Used in chassis KCS29C.
C					74358 ⑨				⑪ Used in chassis KCS29.
									⑨ Used in model 8TK320.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ω)	RCA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.270A	43Ω	1.3 Henries	73154	C-2326	C-2991	TR-3300 ①	①Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L2	Ant. Input					
	Trans.	0Ω		73578		
L3	IF Trap	0Ω		73476		
L4	IF Trap Shunt	0Ω		73475		
L5	IF Trap	0Ω		73476		
L6	RF Grid Coils	0Ω		73633		Stator complete with rotor and coils.
L7A	RF Plate Trimmer Coil	0Ω		74110		Channel #13. Includes core and trimmer. (Threaded bushing type with screw adjustment)
B	RF Plate Trimmer Coil	0Ω		73446		Channel #13. Includes core and trimmer. (Smooth bushing type with screw adjustment)
L8	RF Plate Coils	0Ω		73471		Stator, complete with rotor and coils.
L9	RF Plate	0Ω		73460		
L10	RF Coupling	0Ω		73462		
L11A	Mixer Grid Trimmer Coil	0Ω		74109		Channel #13. Includes core and trimmer. (Threaded bushing type with screw adjustment)
B	Mixer Grid Trimmer Coil	0Ω		73444		Channel #13. Includes core and trimmer. (Smooth bushing type with screw adjustment.)
L12	Mixer Grid	0Ω		73470		Stator, complete with rotor and coils.
L13	Mixer Grid	0Ω		73874		Channel #6
L14 A	Osc. Plate Trimmer Coil	0Ω		74109		Channel #13. Includes core and trimmer. (Threaded bushing type with screw adjustment).
B	Osc. Plate Trimmer Coil	0Ω		73444		Channel #13. Includes core and trimmer. (Smooth bushing type with screw adjustment).
L15	Osc. Plate Coils	0Ω		73468		Stator, Complete with rotor, coils segments and adjusting screws.
L16	Osc. Plate Coils	0Ω		73469		Stator, complete with rotor, coils, segments and adjusting screws.
L17	Osc. Plate	0Ω		73874		
L18A	Fine Tuning	0Ω		74108		Includes core and trimmer (Threaded bushing type with screw adjustment.)
B	Fine Tuning	0Ω		73443		Includes core and trimmer. (Smooth bushing type with screw adjustment.)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) CONT.

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L19	Fil. Choke	0Ω		73477		
L20	Fil. Choke	0Ω		73477		
L21	Fil. Choke	0Ω		73477		
L22	Conv. Trans.	0Ω	0Ω	73448		Includes 22KΩ resistor.
L23	1st Video IF	0Ω	.1Ω	73571		Includes 10KΩ resistor and 82MMF capacitor.
L24	Fil. Choke	0Ω		73477		
L25	2nd Video IF	.1Ω		73572		Includes 47MMF capacitor.
L26	3rd Video IF and Sound Take-Off	.1Ω		73573		Includes 47MMF capacitor.
L27	Peaking	3Ω		74170		36 microhenries. Wound on 8.2KΩ resistor.
L28	4th Video IF	.1Ω		73574		Includes 36MMF capacitor.
L29	Sound Trap	0Ω	0Ω	71778		Includes 75MMF capacitor.
L30	5th Video IF	.1Ω		73575		Includes 56MMF and 8.2MMF capacitor.
L31	Peaking	5Ω		71529		120 microhenries. Wound on 22KΩ resistor.
L32	Peaking	9.5Ω		71526		250 microhenries.
L33	4.5MC Trap	2.6Ω		73577		Includes 47MMF capacitor.
L34	Peaking	7.5Ω		71528		180 microhenries. Wound on 39KΩ resistor.
L35	Peaking	4.5Ω		74214		180 microhenries.
L36	Peaking	6.5Ω		71527		93 microhenries.
L37	Peaking	8Ω		71529		120 microhenries. Wound on 22KΩ resistor.
L38	Peaking	5Ω		71528		180 microhenries. Wound on 39KΩ resistor.
L39	Sound IF	0Ω	0Ω	71424		Includes 10MMF and 33MMF capacitors.
L40	Disc. Trans.	0Ω	0Ω	71422		Includes 56MMF, 47MMF and 56MMF capacitors.
L41	Width Cont.	.2Ω		71429		
L42	Hor. Linearity	36Ω		71449		
L43	FM Ant.	0Ω		74024		No. 16 buss tinned, 8 turns per inch 2 1/2 turns L. H.
L44	AM Ant.	24Ω	2Ω	74020		
L45	FM Osc.	0Ω		74025		No. 16 buss tinned, 9 turns per inch, 4 7/8 turns L. H.
L46	AM Osc.	1Ω	6.5Ω	73744		Pick-up coil 2Ω
L47	1st IF FM	.3Ω	.3Ω			
	AM	8Ω	8Ω	73745		
L48	2nd IF FM	.8Ω	.8Ω	74019		
	AM	7Ω	7Ω			
L49	Ratio Det. Trans.	.9Ω	.3Ω	73743		

DIAL LIGHTS

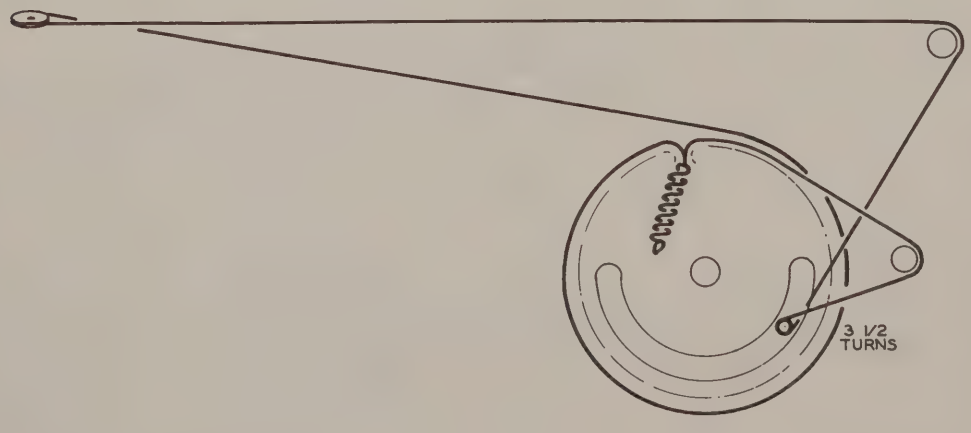
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA RCA PART No.	REPLACEMENT DATA	NOTES
M1	Bayonet	6-8	.2	White	11765		Type #51 (Cabinet lamp, models 9TC272, 9TC275)
M9	Bayonet	6-8	0.2A	White	11765		Type #51 Model 8TK320.
M10	Bayonet	6-8	0.2A	White	11765		Type #51 Model 8TK320.

MISCELLANEOUS

ITEM No.	PART NAME	RCA PART No.	NOTES
M2	RF Tuner	KRK5A	
M3	Switch	74147	Width
M4	Switch	74157	Cabinet Interlock
M5	Switch		TV-Phono
M6	Fuse	73600	Type GJV .25A
M7	Fuse	73600	Type GJV .25A
M8	Ion Trap	74148	Permanent Magnet Type
	Core	74187	L17
	Cord	74457	Power Cord and Plug
	Socket	74251	Picture Tube
	Cabinet Back	74261	Model 8TK320
	Cabinet Back	74158	Model 9T270
	Cabinet Back	74603	Models 9TC272, 9TC275
	Escutcheon	73642	Channel Marker (Mahogany and Walnut Models) Models 9T270, 9TC272, 9TC275, 8TK320
	Escutcheon	73740	Channel Marker (Toasted Mahogany and Oak Models) Models 9T270, 9TC272, 9TC275, 8TK320
	Safety Glass	74606	Model 9TC270
	Safety Glass	74609	Model 9TC272, 9TC275
	Safety Glass	74252	Model 8TK320
	Mask	74605	Picture Tube, Models 9T270, 9TC272, 8TC275
	Mask	74126	Picture Tube, Model 8TK320
	Knob	73994	Fine Tuning — Dark for Mahogany or Walnut Models
	Knob	73996	Channel Selector — Dark for Mahogany or Walnut Models
	Knob	73998	Vert. Hold, Brightness, Tone — Dark for Mahogany or Walnut Models
	Knob	74000	Hor. Hold, Contrast, Volume — Models 9TC270, 9TC272, 9TC275
	Knob	73995	Fine Tuning — Tan for Toasted Mahogany or Oak Models.
	Knob	73997	Channel Selector — Tan for Toasted Mahogany or Oak Models.
	Knob	73999	Vert. Hold, Brightness, Tone — Models 9TC270, 9TC272, 9TC275.
	Knob	74001	Hor. Hold, Contrast, Volume — Models 9TC270, 9TC272, 9TC275.
	Knob	73224	Channel Selector
	Knob	73222	Fine Tuning — Dark for Mahogany or Walnut Models. Model 8TK320
	Knob	74361	Tone Cont. — Dark for Mahogany or Walnut Models. Model 8TK320
	Knob	73226	Vert. Hold, Brightness
	Knob	73228	Volume, Hor. Hold, Contrast
	Knob	73225	Channel Selector
	Knob	73223	Fine Tuning — Tan for Toasted Mahogany or Oak Models. Model 8TK320
	Knob	74362	Tone Cont. — Tan for Toasted Mahogany or Oak Models. Model 8TK320
	Knob	73227	Vert. Hold, Brightness
	Knob	73229	Volume, Hor. Hold, Contrast
	Trimmer	73580	Hor. Locking Range(10-160MMF)
			Hor. Drive Cont. (40-370MMF)
M11A	Selector Switch	74260	Used with RK135A Tuner. Complete with Heater Switch and Shorting Switch.
B	Selector Switch	74018	Used with RK135 Tuner. Complete with Heater Switch and Shorting Switch.
M12	Switch	74031	Heater
M13	Switch	74032	Shorting
M14	Tuning Cap.	74017	(20-392MMF) (17-197MMF) (W/T)
	Knob	74056	Radio Tuning, Selector Switch (Walnut and Mahogany Models)
	Knob	74057	Radio Tuning, Selector Switch (Toasted Mahogany Models)
	Bezel	74052	Lucite Bezel and Dial Scale Assembly.

DISASSEMBLY INSTRUCTIONS
(MODEL 9TC272)

1. Remove four push-on type control knobs.
2. Remove seven screws holding rear cover. Remove cover.
3. Remove picture tube base socket and beam bender.
4. Loosen two wing nuts holding front panel. Remove panel.
5. Loosen lower two phillips head screws holding picture tube mounts. Remove picture tube.
6. Remove HV lead clip from lower left picture tube mount.
7. Remove two screws holding antenna terminal strip, or remove antenna lead in plug.
8. Remove three screws holding power interlock.
9. Disconnect speaker plug.
10. Remove panel lamp socket.
11. Remove six 3/8" hex head bolts holding chassis. Remove chassis.
12. Remove four 5/16" hex nuts holding speaker. Remove speaker.



DIAL CORD STRINGING

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR CHECK

Turn the horizontal hold control to the extreme counter-clockwise position, the picture should remain in synchronization. Momentarily remove the signal by switching to another channel and back again. Normally the picture will be out of sync. Turn the horizontal hold control slowly clockwise until there are three sloping bars in the picture. The picture should then pull into sync. upon slight additional clockwise rotation of the hold control. The picture should synchronize with the hold control approximately 90° from maximum counter-clockwise, and should remain synchronized for an additional 90° of clockwise rotation. With the hold control at maximum clockwise, the picture should be out of synchronization and show one vertical or diagonal black bar.

HORIZONTAL OSCILLATOR ALIGNMENT

If the picture failed the above check it will be necessary to align the horizontal oscillator as follows: Connect a short across terminals C and D of T1. Turn the horizontal hold control to the extreme clockwise position. Adjust the horizontal frequency slug (B1) until the picture is just out of sync and shows a single vertical or sloping black bar.

Turn the horizontal hold control fully counter-clockwise. Momentarily remove the signal by switching to another channel and back again. Slowly turn the hold control clockwise and note the least number of bars present just before the picture falls into synchronization. If more than three bars are present just before the picture synchronizes, adjust the horizontal lock trimmer (B5) slightly clockwise. If less than three bars are present, turn B5 slightly counter-clockwise. Repeat the above procedure until three bars are present just before synchronization.

HORIZONTAL LINEARITY ADJUSTMENTS

These adjustments should be made while receiving a test pattern from a TV station. Adjust the horizontal drive trimmer (B2) clockwise as far as possible without crowding the right side of the picture. Set the width switch to position No. 1. Adjust the width slug (B3) until the picture fills the mask horizontally. If insufficient width cannot be obtained, switch the width to position No 2 or 3. Note that in positions 2 and 3 the width control is disconnected. Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right. Readjustment of (B2) may be necessary for best results.

WAVEFORM ADJUSTMENT

Remove the short from terminals C and D of T1. Connect a low capacity oscilloscope probe to terminal "C" of T1. Adjust the waveform adjustment slug (B6) until the broad and sharp peaks of the waveform on the oscilloscope are of equal height as shown in figure 8. If necessary, keep picture synchronized with the horizontal hold control. Repeat the horizontal oscillator check and retouch B5, if necessary.

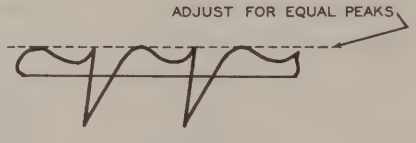
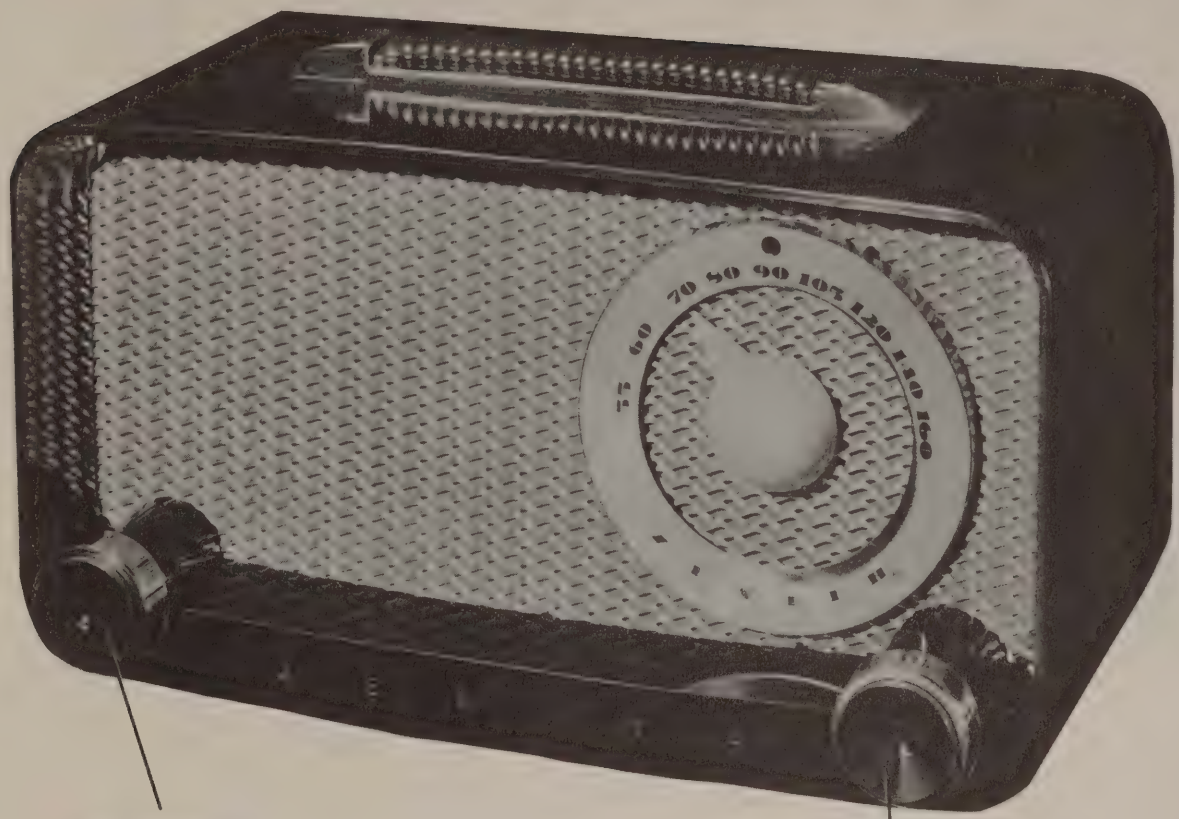


FIG. 8

ZENITH MODELS G511, G511W, G511Y (Ch. 5G01)



ZENITH MODELS G511, G511W, G511Y (Ch. 5G01)

TRADE NAME	Zenith, Models G511, G511W, G511Y (Ch. 5G01)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 IF Amp., 12AT6 DET-AVC-AF, 50L6GT Power Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC — RATING .26 Amp. at 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial.

Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to stator of rear section of tuning gang. Low side to B-.	455KC (400 ~ Mod.	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	"	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	DET.-AVC-AF	12AT6	12AT6	7BT	
V4	Power Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	60	150	22-1804	AF844D *	UP42215 *		EL-224*	■ Filter
B	20	150						▲ Filter
C2	.05	200	22-829	P288-05	PTE4S5		TM-15	AVC Filter
C3	110		22-5	1468-0001	5W5T1	GP1K-100	1FM-31	Osc. Grid Cap.
C4	.05	200	22-1158	P288-05	PTE4S5		TM-15	Tone Compensation
C5A	7000		105-14	P488-0068	PTE6D6	GP2M-0068	TM-26	Audio Coupling
B	500			1468-0005	5W5T5	GP2K-500	1FM-35	AF Plate Bypass
C	5000			P688-005	PTE6D5	811-005	TM-25	Audio Coupling
C6	.02	400	22-1379	P488-02	PTE4S2		TM-12	Output Plate Bypass
C7	.05	200	22-829	P288-05	PTE4S5		72P51	Line Isolation
C8	.05	400	22-1017	P488-05	PTE4S5		TM-15	Line Filter

* Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	63-1660	Q11-137	AM-61-Z	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
C	Switch		Not Req.	76-1	SW-A	Attach to R1A per instructions

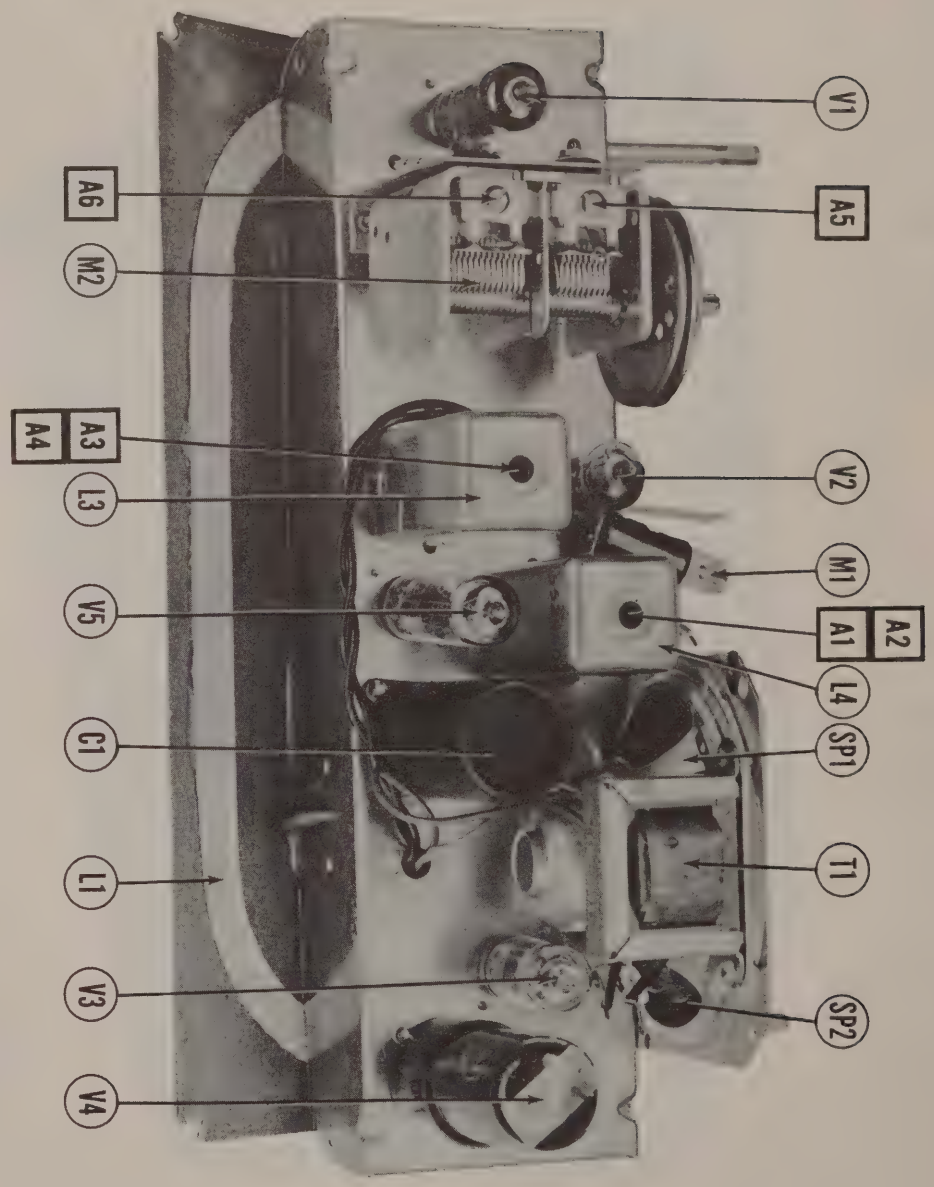
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R2	10KΩ	½	63-1828	BTS-10K	Osc. Grid
R3	68Ω	½	63-1737	BW-½-68	IF Cathode
R4	2.2 Meg.	½	63-1926	BTS-2.2 Meg.	AVC Network
R5	4700Ω	½	63-1814	BTS-4700	Tone Compensation
R6	820Ω	½	63-1782	BTS-820	Tone Compensation
R7	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	AF Grid
R8	470KΩ	½	63-1898	BTS-470K	AF Plate
R9	470KΩ	½	63-1898	BTS-470K	Output Grid
R10	150Ω	1	63-1977	BW-1-150	Output Cathode
R11	1000Ω	1	63-1574	BW-1-1000	Filter
R12	22Ω	½	63-1219		Surge Limiter-Wire Wound

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	INSTALLATION NOTES
T1	2000Ω	3.3Ω	180Ω	.5Ω	206-645	A-3876	A-2928	RO-2	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-113 †		
SP1	PM	3.3Ω	49-645	MOD. P4-X	4A07 †	† Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"	208-645			

R F COILS

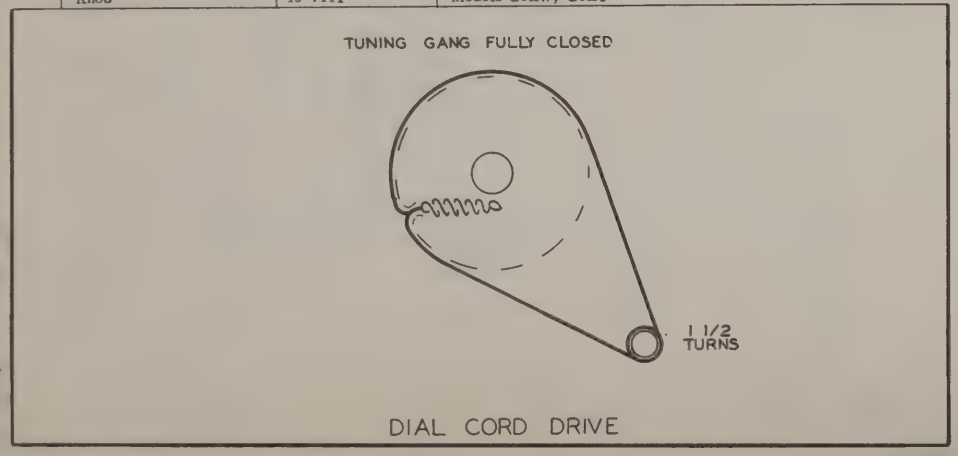
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA MEISSNER PART No.	
L1A	Loop Ant.	2.5Ω		S-14976		Models G511, G511Y
B	Loop Ant.			S-14977		Model G511W
L2	Osc. Coil	.6Ω	5Ω	S-14842	14-1060	
L3	Input IF	20Ω	20Ω	95-1101	16-6666	
L4	Output IF	20.5Ω	20.5Ω	95-1102	16-6670	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ZENITH PART No.		NOTES
M1	Bayonet	6-8	.15	Brown	100-67		Type #47

MISCELLANEOUS

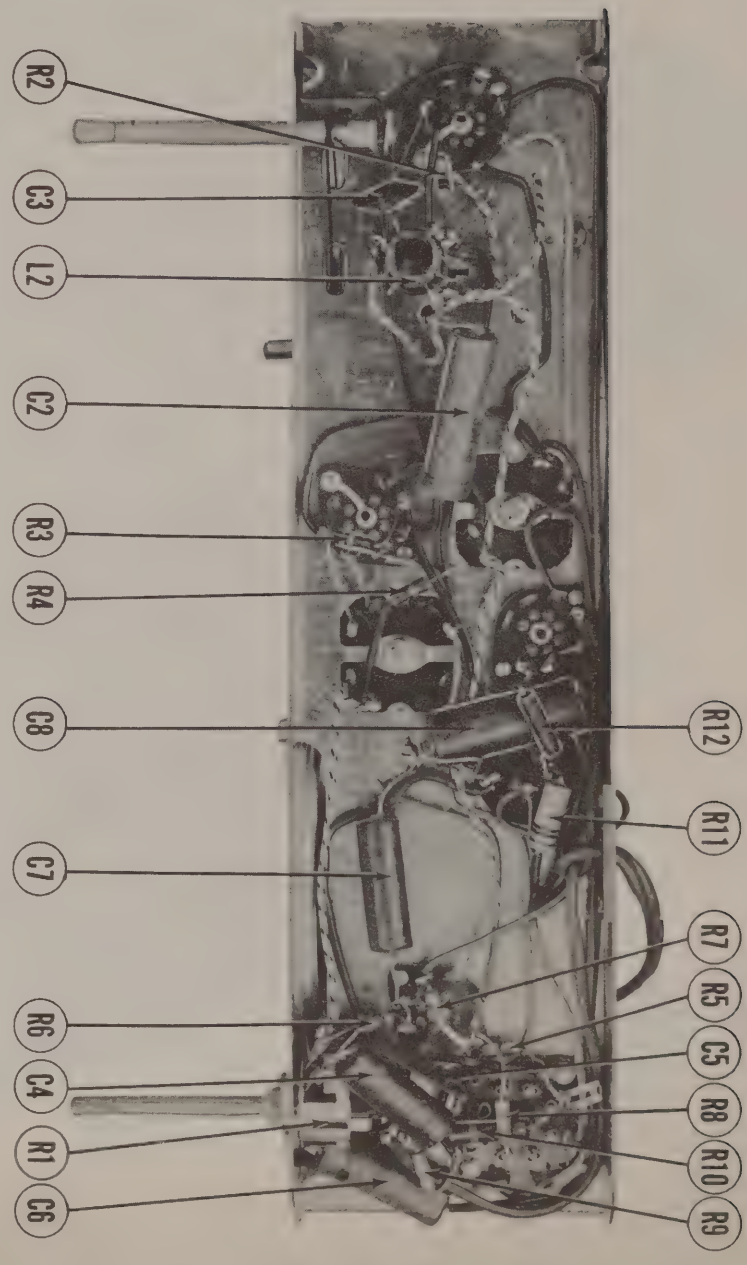
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	2 Gang Var. Cap.	22-2152	(33-467MMF, 35-207MMF)
	Dial Scale	26-433	
	Dial Pointer	59-236	
	Cabinet	14-1011	Model G511
	Cabinet	14-1011W	Model G511W
	Cabinet	14-1011Y	Model G511Y
	Knob	46-744	Model G511
	Knob	46-744Y	Models G511W, G511Y



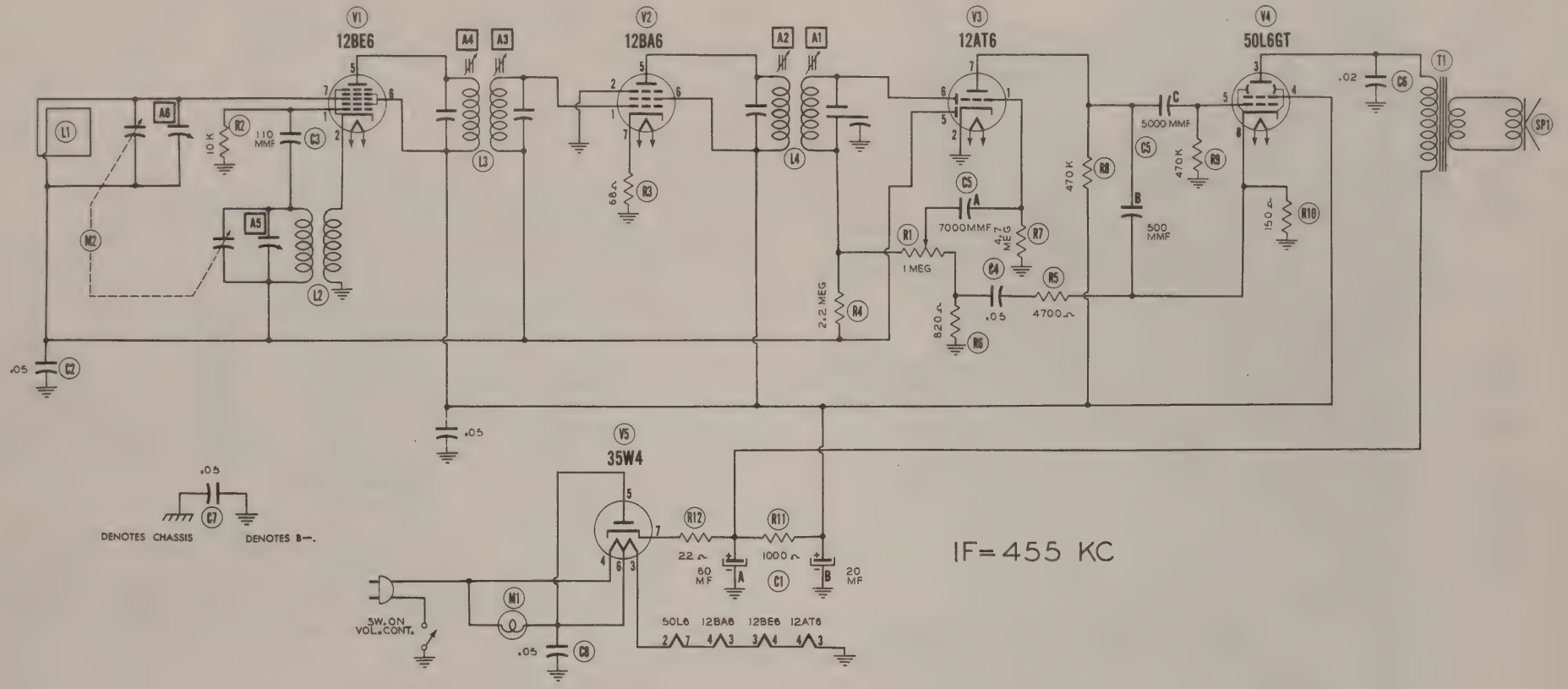
SET 85 FOLDER 14

ZENITH MODEL G511

CHASSIS—BOTTOM VIEW



ZENITH MODEL G511



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VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BE6	§-3.5VDC	0V.	24VAC	12VAC	85VDC	85VDC	-.8VDC	
V 2	12BA6	-.8VDC	0V.	24VAC	36VAC	85VDC	85VDC	.7VDC	
V 3	12AT6	-.5VDC	0V.	0V.	12VAC	-.8VDC	-.8VDC	35VDC	
V 4	50L6GT	0V.	85VAC	110VDC	85VDC	0V.	5.8VDC	36VAC	5.8VDC
V 5	35W4	0V.	0V.	85VAC	117VAC	110VAC	110VAC	117VDC	

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BE6	10KΩ	.5Ω	24Ω	12Ω	†1000Ω	†1000Ω	3.2 Meg.	
V 2	12BA6	20Ω	0Ω	24Ω	36Ω	†1000Ω	†1000Ω	68Ω	
V 3	12AT6	4.7 Meg.	0Ω	0Ω	12Ω	3.2 Meg.	1 Meg.	†470KΩ	
V 4	50L6GT	Inf.	85Ω	†190Ω	†1000Ω	470KΩ	4.7KΩ	36Ω	150Ω
V 5	35W4	Inf.	Inf.	85Ω	112Ω	110Ω	110Ω	45KΩ	

††MEASURED FROM PIN 7 OF V5.

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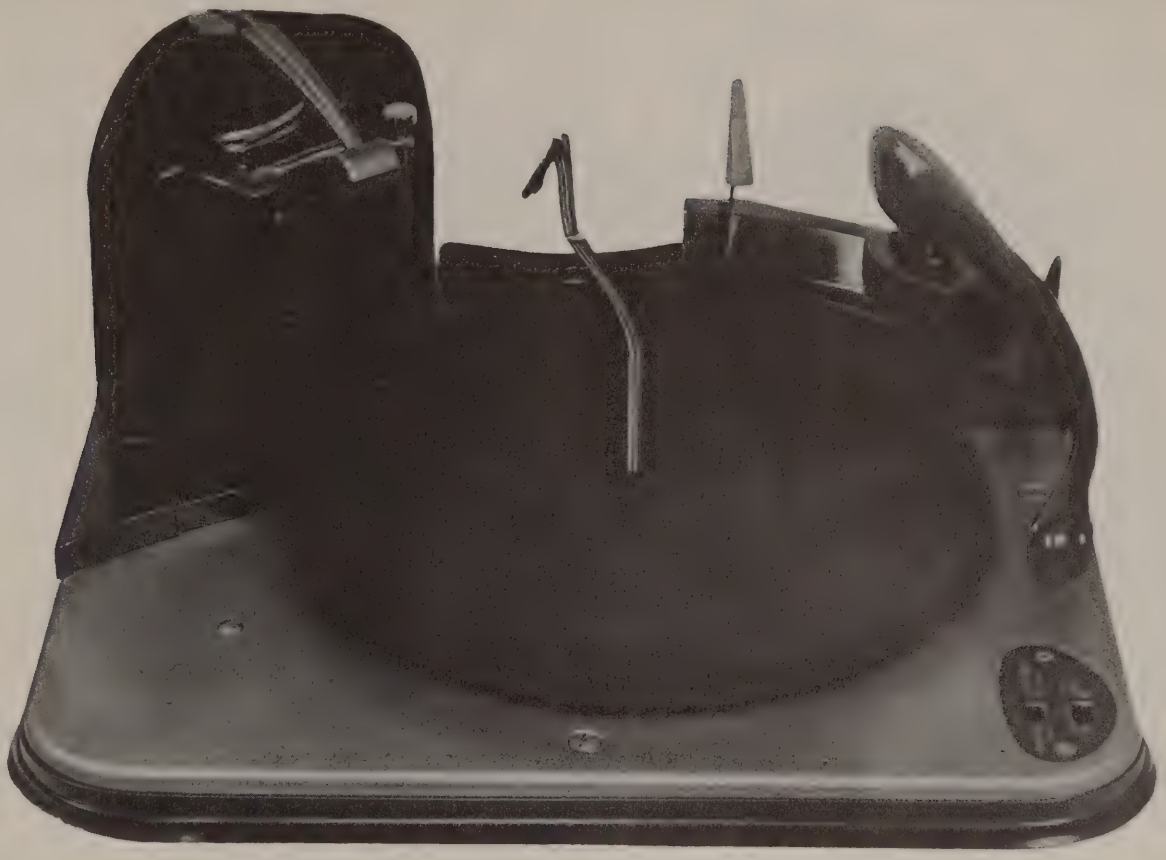
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ZENITH MODELS
S-13675, S-14002, S-14006, S-14008



TOP VIEW

ZENITH MODELS
S-13675, S-14002, S-14006, S-14008

GENERAL INFORMATION

Models S-13675, S-14002, S-14006, and S-14008 are alike, except for slight mechanical, electrical and color variations.

These models are designed to automatically play up to fourteen 10-inch or twelve 12-inch records at a loading, or up to twelve 10-inch and 12-inch records intermixed.

Models S-13675 (maroon) and S-14006 (black) are identical mechanically and will automatically shut off after the last record is played.

Models S-14002 (maroon) and S-14008 (black) have slight electrical differences. These models, S-14002 and S-14008, will play the entire selection of records and repeat the last record until shut off.

A muting switch is incorporated in this changer to eliminate noise and microphonics during the change cycle.

Manufactured by ZENITH RADIO CORPORATION • CHICAGO 39, ILLINOIS

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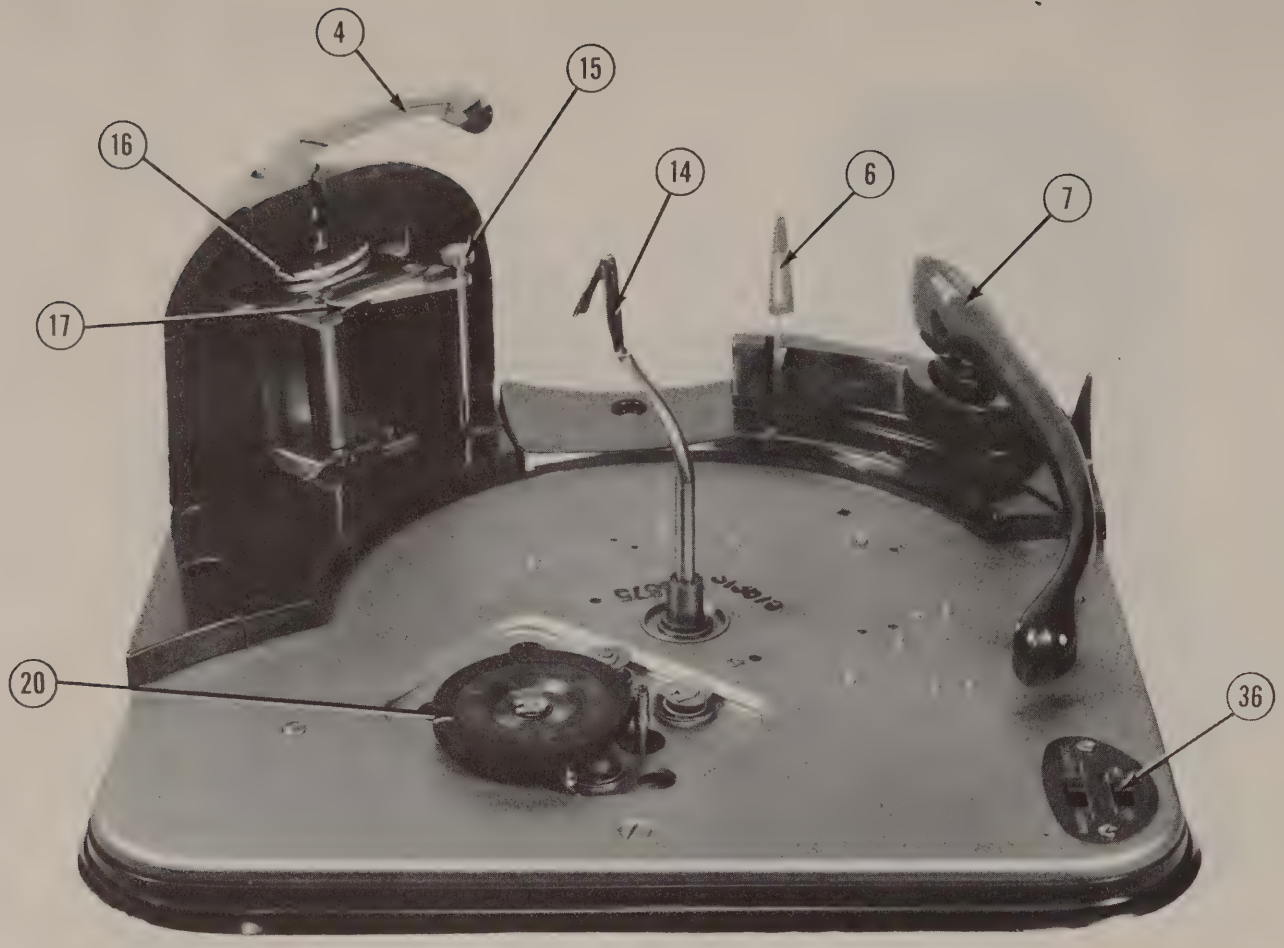


TOP VIEW—LESS TURNTABLE

LOADING

Lift the pressure arm (4) and swing it in a counterclockwise direction. The record spindle (14) should be turned to its counterclockwise position with the hinged-gate on the end of the spindle turned down. Place the records to be played on the spindle so that the stack is supported by the shoulder of the spindle and the record support plate (17). Turn the pressure arm in a clockwise direction and allow it to rest on the record stack. Set the "Manual-Automatic" switch to "Automatic." Set the "On-Off" switch to the "On" position and press the "Record Change" button (on the radio control panel). The changer will then play the entire stack of records. In case the Model S-14002 or S-14008 is used, the last record will repeat until shut off. In Models S-13675 and S-14006, the mechanism will automatically shut off on completion of the last record.

To unload, return the pressure bar to its raised and counterclockwise position as in loading. Turn the record spindle to its clockwise position and lift the records from the turntable.

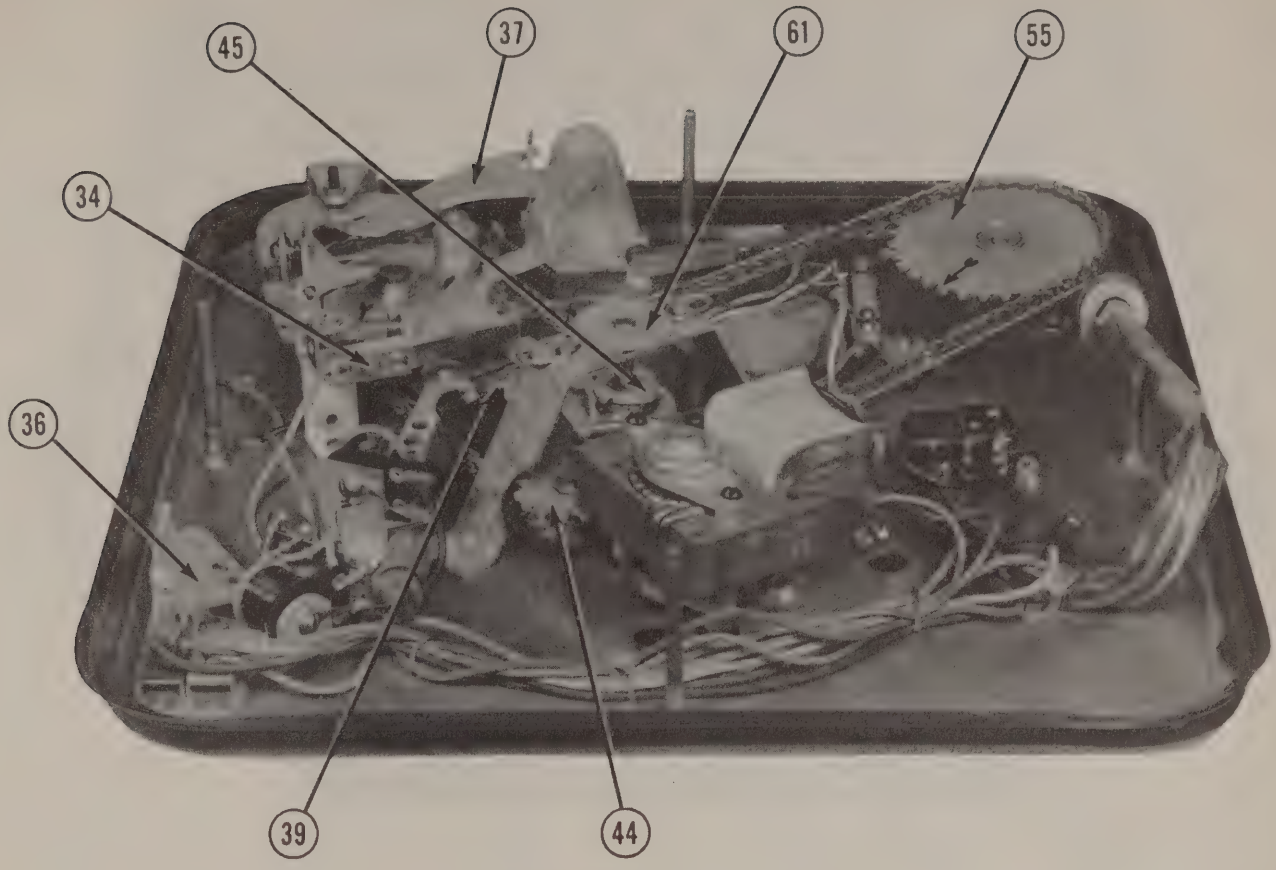
TO REMOVE TURNTABLE

The turntable is held by its taper fit on the drive shaft bearing assembly. To remove, hold the plate (45) with one hand and turn the turntable with the other. When replacing the turntable, be certain that the idler wheel is pushed inside the turntable rim.

CHANGE CYCLE

At the completion of the playing of the record, the needle enters the eccentric groove of the record; therefore, the oscillation of the pickup arm causes the serrated portion of the control lever (33) to engage the pawl of the trip lever (35). This closes the trip switch of the trip lever mounting bracket assembly (34) and energizes the solenoid (66). If the record does not have an eccentric groove, the position trip screw of the control lever (33) closes the cycling switch.

Closing either the trip switch or the "Record Change" switch energizes the solenoid. The magnetic flux of the solenoid attracts the clutch-release lever (40A) causing the mechanism to trip and move the pawl pusher lever (40B) away from the clutch pawl of (47). This action allows the clutch spring (46) to pull the clutch pawl into engagement with the drive plate segment (45). This starts the clutch sprocket rotating. The clutch sprocket is meshed with the chain drive sprocket (44) and the chain



BOTTOM—FRONT VIEW

(59) drives the selector (55) and timing sprocket (32).

The brake lever (42) is actuated by the stud on the timing sprocket as the sprocket rotates. The brake prevents coasting and allows smooth landing of the needle. The brake also closes the muting switch (48) to prevent noise and microphonics during the change cycle. The timing sprocket raises the pickup arm lift pin (27), which, in turn, raises the pickup arm from the record. The locating pin or bushing (32A) contacts the control lever (33) and, in turn, swings the pickup arm out clear of the record stack.

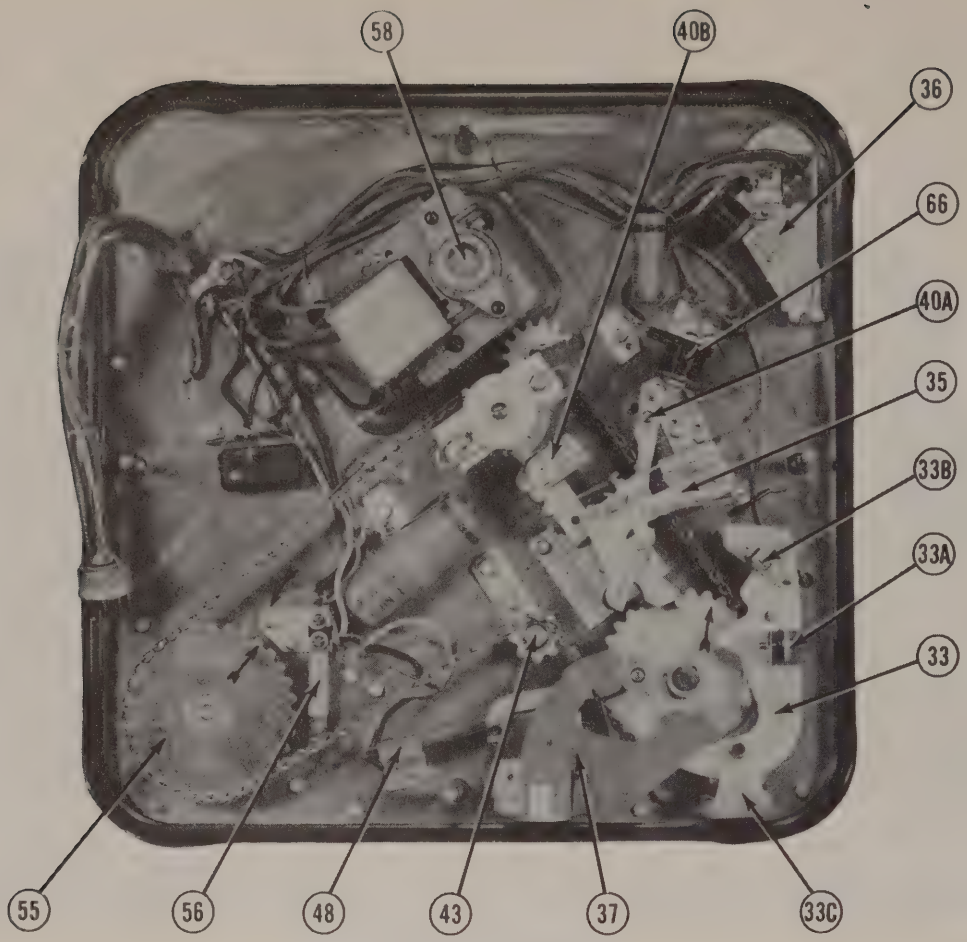
For 10-inch records, the trip plate (37) is held in a raised position by the discriminator lever (37A), so that the locating bushing (32A) is raised as the timing sprocket revolves. For 12-inch records, the trip plate is dropped into its lower position by the discriminator lever, which has been actuated by the 12-inch record as it falls to the turntable. (The difference in diameter of the bushing and its pin furnishes the one-inch change of the pickup arm for the 10-inch and 12-inch records). A projection on the trip plate (37) allows the locating bushing to reset the discriminator mechanism after each 12-inch record. The normal position of the locating bushing prevents the discriminator mechanism from tripping between cycles.

The selector sprocket, which also moves at this time, drives the record ejector cam (16) through its shaft, causing the bottom record of the unplayed stack to drop to the playing position on the turntable.

The pickup arm now moves in over the starting groove of the record. The reset stud on the timing sprocket (32) resets the clutch-trip mechanism moving the pawl pusher lever in the path of the clutch pawl. This releases the clutch and the cycle is complete.

The friction brake (42) on the timing sprocket holds the mechanism in its normal position between cycles.

In models S-13675 and S-14006 the changer will automatically shut off on completion of the last record. This is done by the lack of weight of a record on the stop push rod (15). This allows the push rod to raise and to close the stop switch (56), which energizes the solenoid of the shut-off switch assembly (36). The solenoid attracts the pawl of the switch assembly (36) allowing the shutoff lever spring to pull the "on-off" switch to the "off" position.



BOTTOM VIEW

ADJUSTMENTS

Pickup Arm Setdown Point

The pickup arm setdown point may be adjusted by means of the spring-loaded adjustment screw (33A) on the control lever (33). The pickup arm must be held in a rest position while the adjustment is made. Clockwise rotation of the screw moves the pickup arm in, while counterclockwise rotation moves it out.

Pickup Arm Height

An adjustment lift pin (27) is provided to permit proper pickup arm lift. At its maximum rise, the pickup arm should clear the bottom of the unplayed stack by approximately the thickness of a standard record. If the lift is greater, the pickup may strike the upper record, or if the lift is not great enough, the needle will not clear the last record of a full stack.

If the spacing is incorrect, lift the pickup arm, remove the lift pin (27), and adjust the lift pin to the proper length.

Trip Switch Adjustment

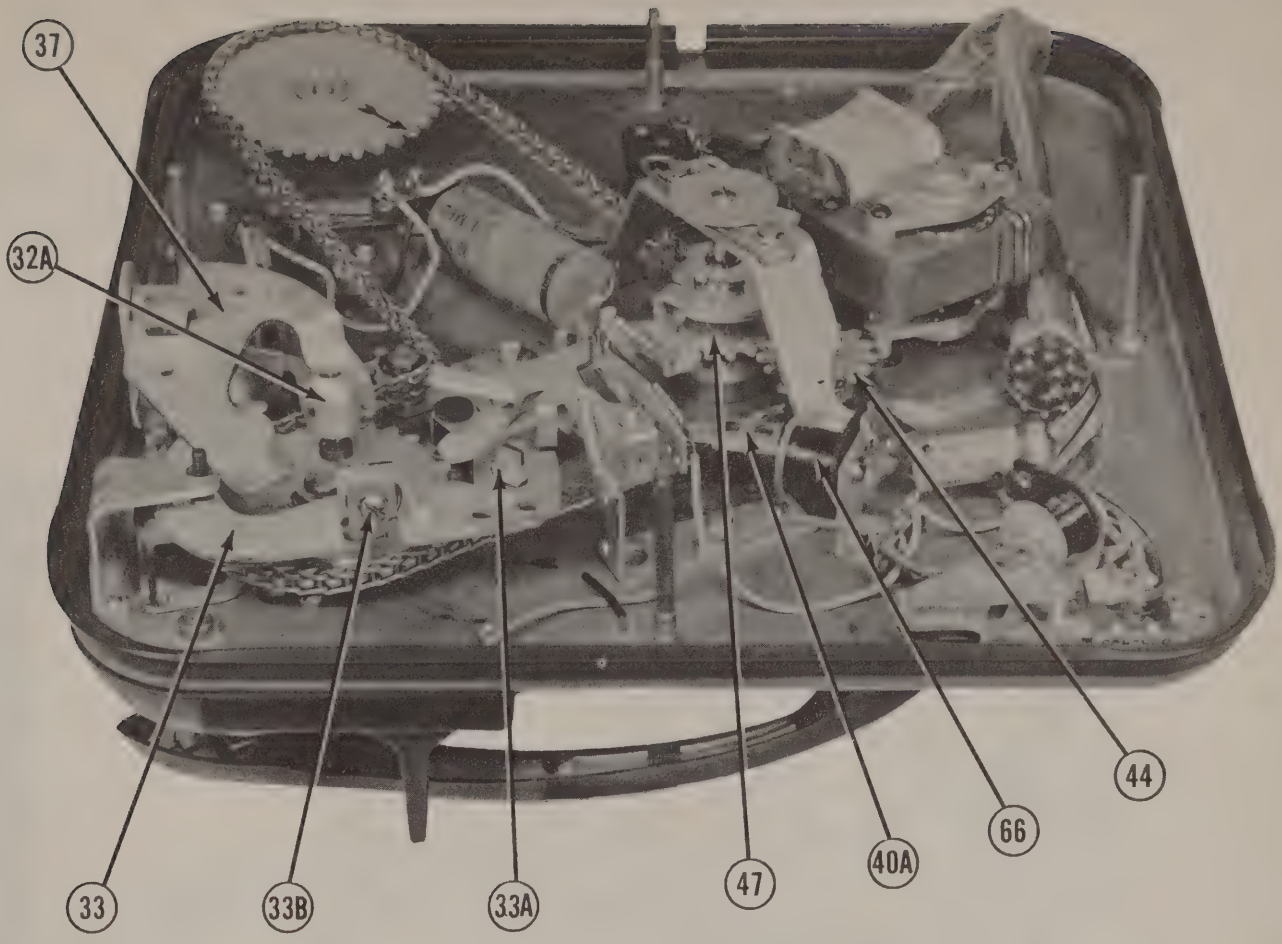
The trip switch of the trip lever mounting bracket assembly (34) is in correct adjustment when its contacts are spaced approximately 1/16″ apart, with the pickup arm in its outward position, so that the serrated portion of the control lever (33) does not touch the pawl of the trip lever (35). To adjust the spring tension, insert a screwdriver between the contact and guide springs and bend the contact spring until an approximate pressure of one ounce is necessary to move the contact spring from the guide spring. Be certain that the contact spring exerts some pressure on the guide spring after the adjustment.

The spacing between the trip magnet (66) and the clutch-release lever (40A) should be approximately 3/32″.

Position Trip

A position trip is provided to insure tripping of the mechanism in instances where the record does not have an eccentric groove. Adjustment of the position trip screw (33B) changes this trip point. Turning the screw clockwise will cause the mechanism to trip earlier. Backing the screw out will delay the tripping.

Under normal conditions, the adjustment is ob-



BOTTOM—RIGHT SIDE VIEW

tained with the trip occurring when the needle is 1⅞" from the center of the spindle.

Sprocket Drive Chain

The tension of the drive chain (59) may be adjusted by means of the adjustable idler sprocket (43).

Synchronization

In the event that it is necessary to remove the chain, the timing sprocket (32) and the selector sprocket (55) must be synchronized when the chain is replaced. To adjust, do as follows:

1. Reset the clutch-release lever (40A).

2. Align the arrow marked on the timing sprocket and the selector sprocket with a similar arrow marked on the baseplate. Correct adjustment of the reset stud on the timing sprocket (32) should be between 1/16" and ¼" from the reset lever of the clutch-release arm assembly (40). *These positions must be maintained during the next operation.*

3. Thread the chain over the timing sprocket (32), chain drive sprocket (44), adjustable idler (43), and the selector sprocket (55). Set the adjustable idler for medium tension of the chain. Check the position of the synchronizing marks and the reset stud.

4. Remove the retaining washer and lift the chain drive sprocket until the gears disengage.

5. Turn the clutch (47) until the clutch pawl touches the pawl pusher lever.

6. Lower the chain-drive sprocket until it engages the clutch gears and replace the retaining washer.

TROUBLES

Needle Fails to Clear Maximum Load of Records

(a) Check the adjustment on "Pickup Arm Height."

Pickup Arm Falls Off Record

(a) Check the adjustment on "Pickup Arm Set-down Point."

(b) Check the pickup pivot bracket (33C).

(c) Check to see if the changer is level.

A PHOTOFACT "EXPLODED" VIEW

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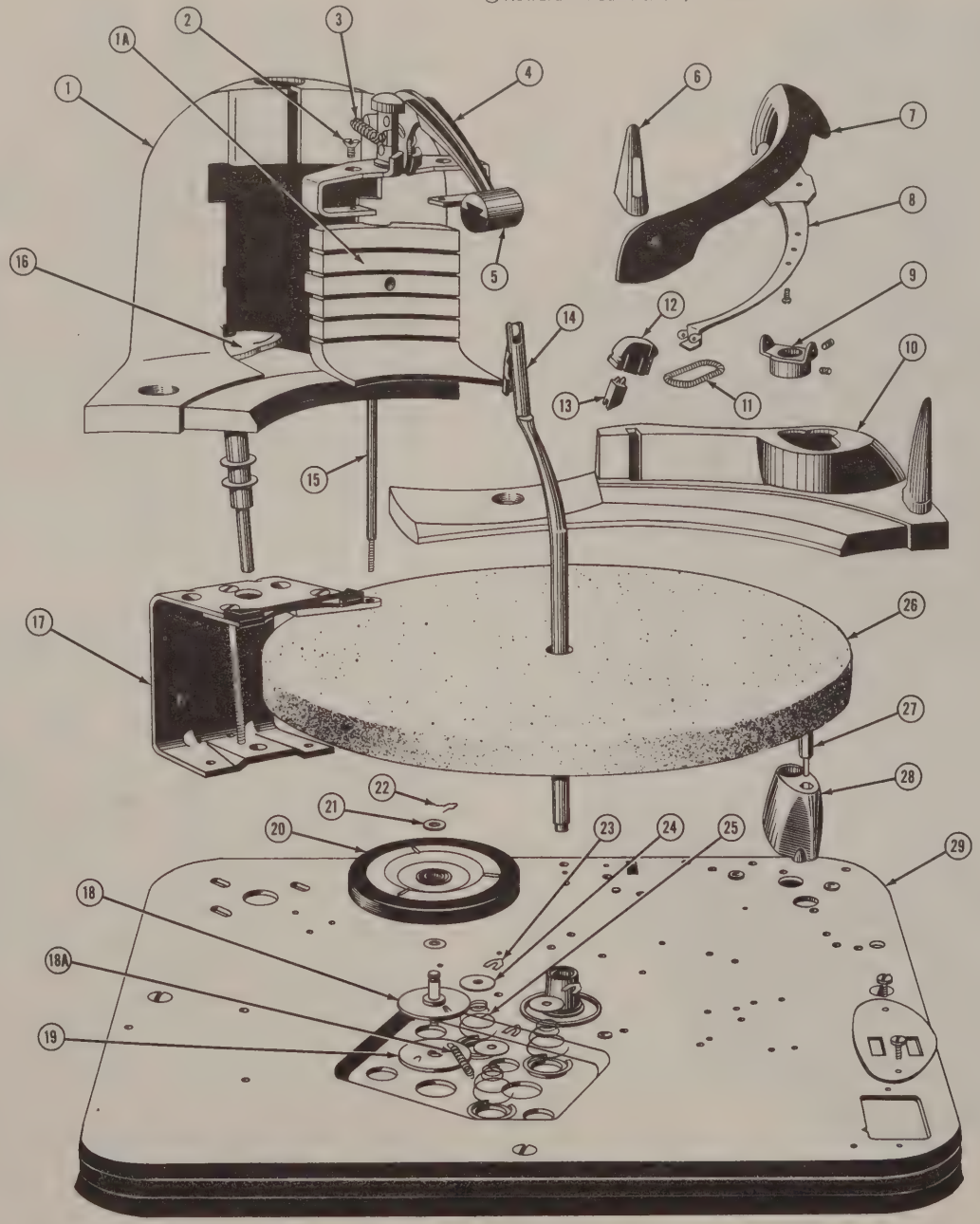

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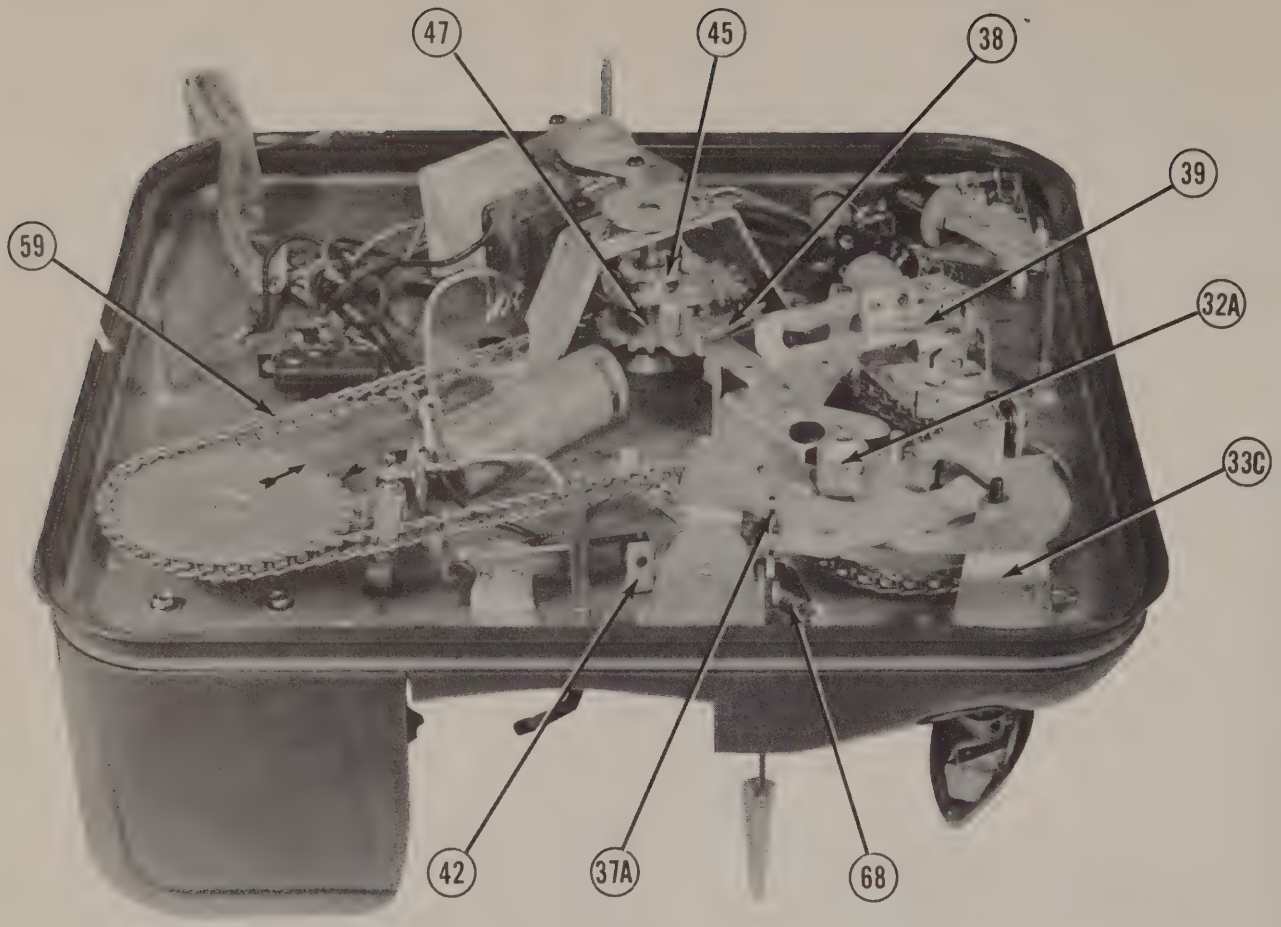


BOTTOM—BACK VIEW

Pickup Arm Setdown Position Varies

(a) Check the pickup arm brake (42) and spring (68).

(b) Tight pickup arm connecting leads.

Changer Cycles When the "Automatic and Manual" Switch Is Set at "Manual" Position

(a) Check the switch (36).

Changer Continues to Cycle

(a) Check the adjustment on "Trip Switch Adjustment."

(b) Check for sticking of the clutch-release mechanism.

(c) Spring (39) missing.

(d) Check Record Change switch.

Changer Will Not Cycle Upon Completion of Record

(a) Check the "Automatic and Manual" switch.

(b) Check the "Trip Switch Adjustment."

(c) Check the magnet assembly (66).

(d) Check the drive chain for extreme tightness.

Squeaks When Changer Is in Cycle

(a) Check the "Lubrication."

Squeaks During Playing of Record

(a) Check friction between records and spindle. A thin coat of wax on spindle will remedy.

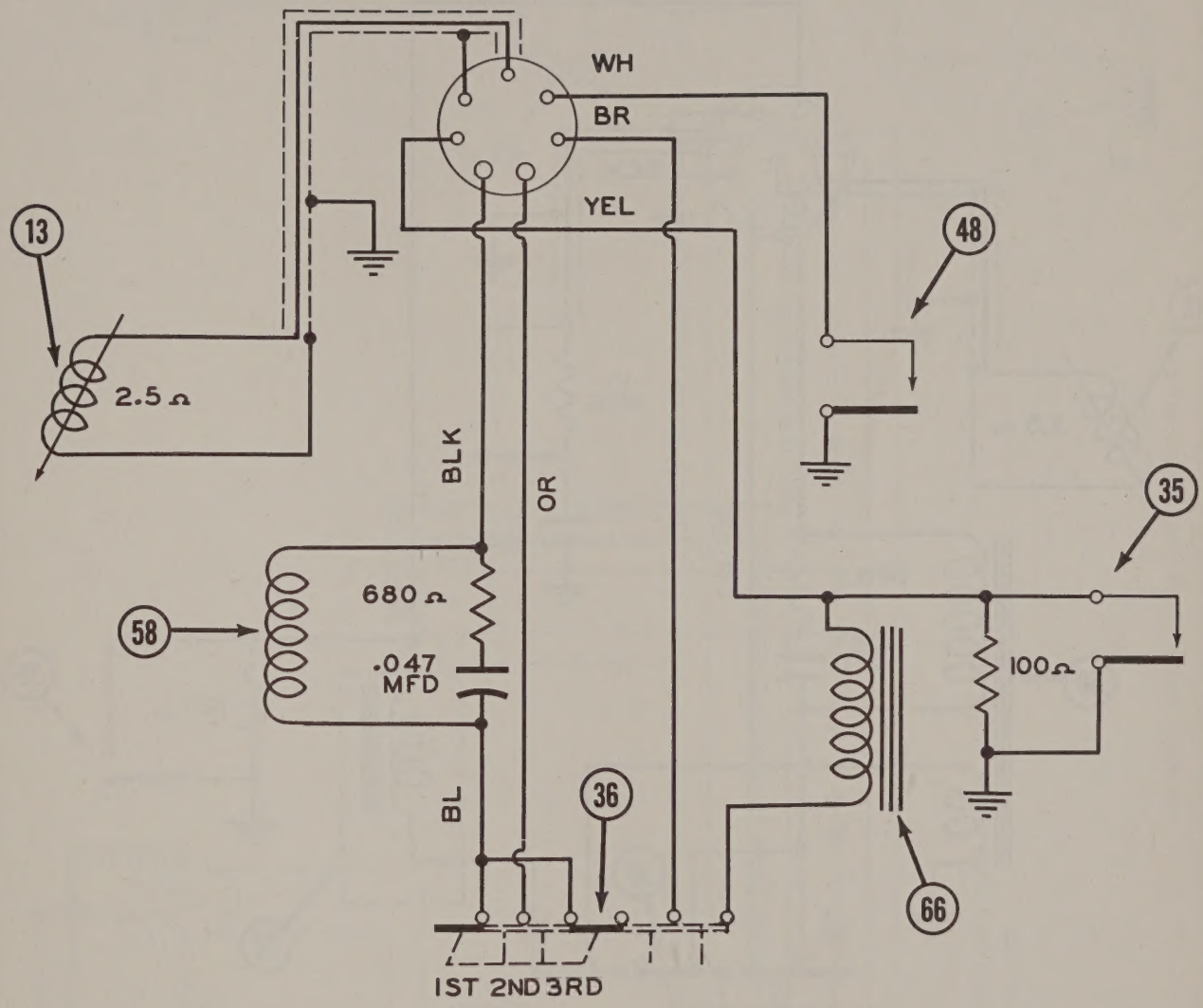
LUBRICATION

Use Light Machine Oil on the Following Points

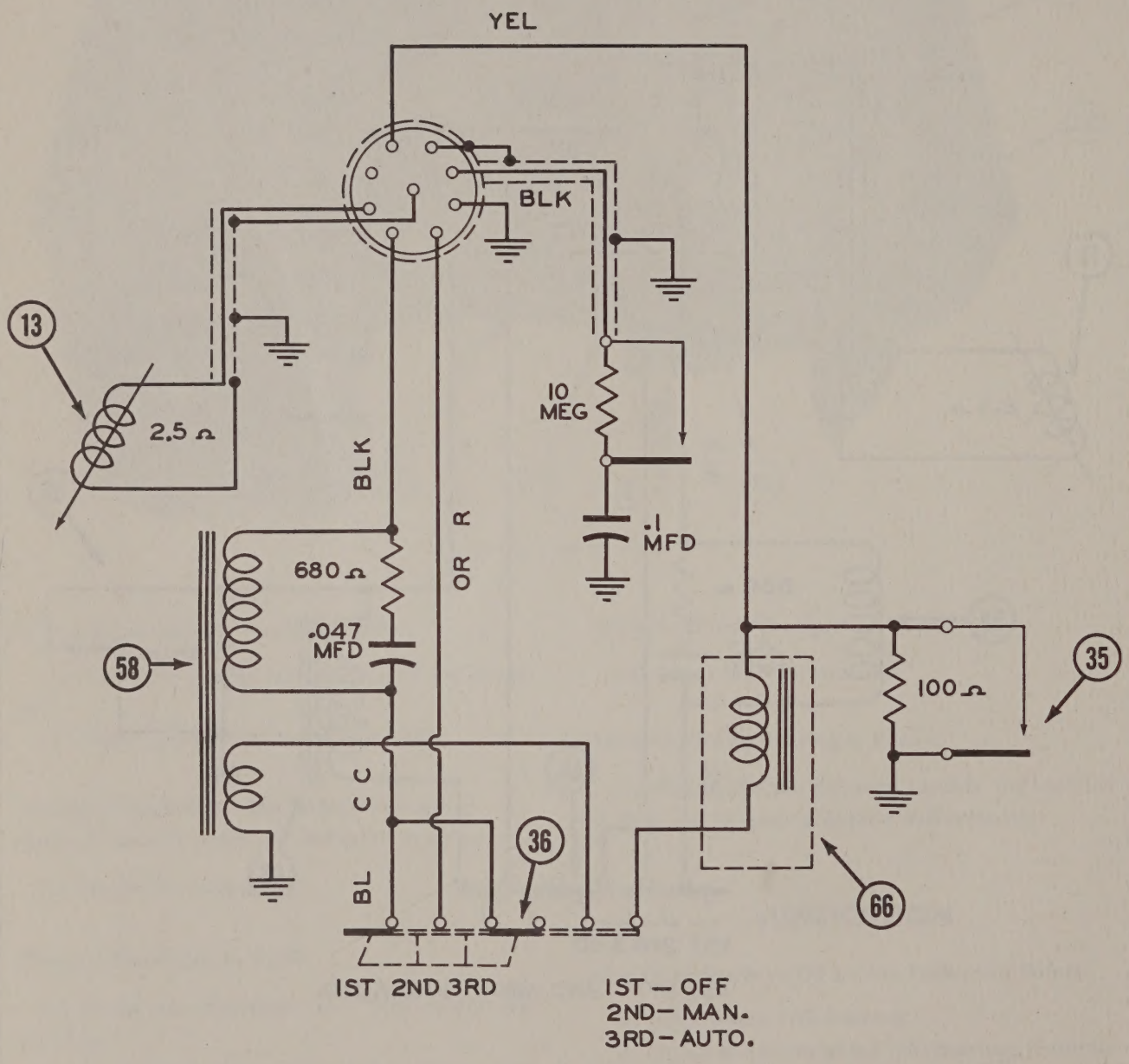
1. Idler wheel (20) bearing.
2. Upper and lower motor (58) bearings (Saturate Oil Wicks).
3. Record spindle guide bearing.
4. Lower drive shaft bearing (47).
5. Drive shaft thrust bearing.

Use Sta-Put Grease No. 512 on the Following Points

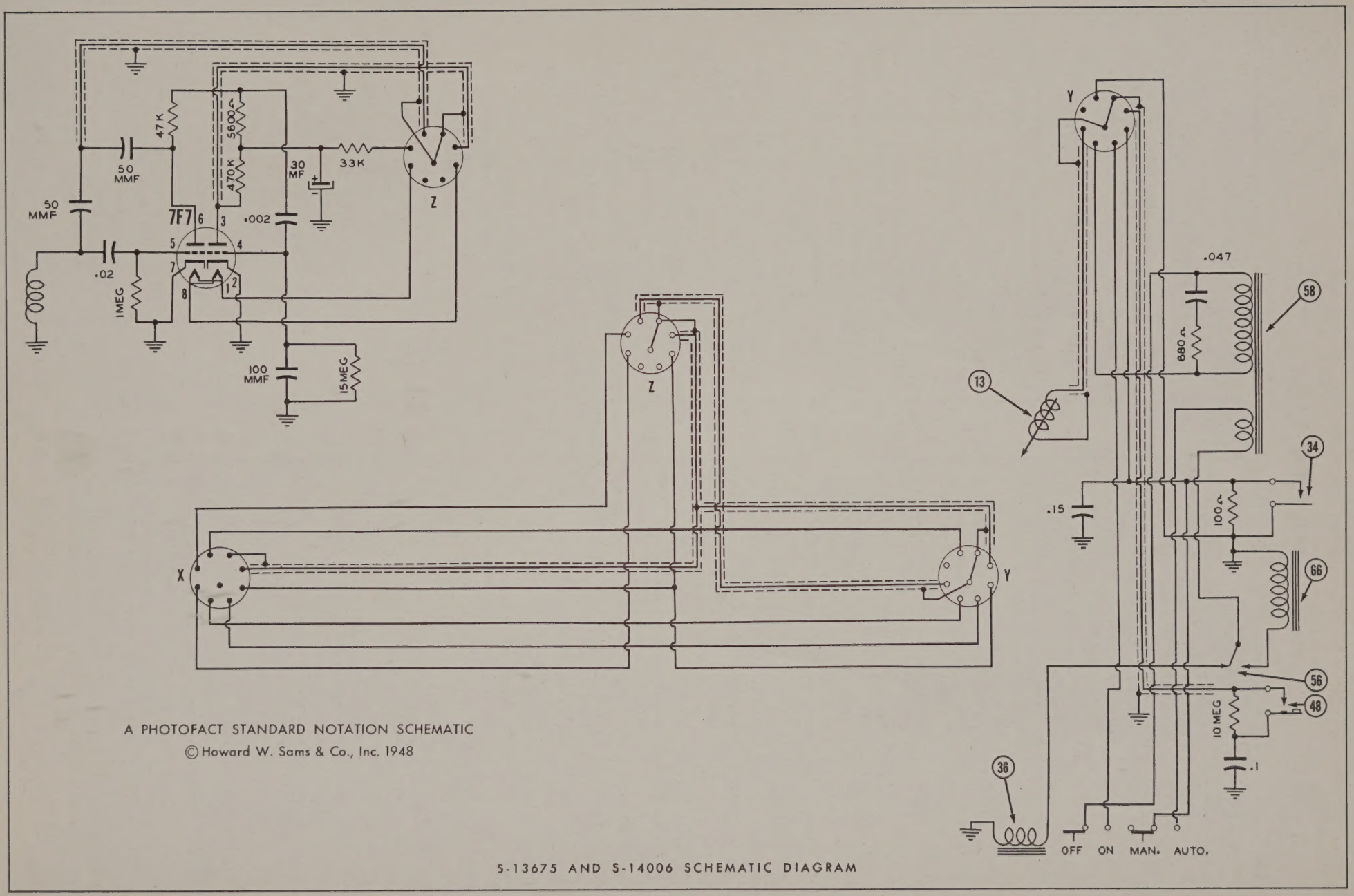
1. Teeth of all sprockets.
2. Lift pin groove of the timing sprocket (32)
3. Upper surface of the trip plate (37).



S-14002 SCHEMATIC DIAGRAM



S-14008 SCHEMATIC DIAGRAM



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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S-13675 AND S-14006 SCHEMATIC DIAGRAM

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	43-147	Record ejector housing (S-13675, S-14002)
	43-164	Record ejector housing (S-14006, S-14008)
1A	S-13461	Record ejector housing cover assembly (S-13675, S-14002)
	S-12038	Record ejector housing cover assembly (S-14006, S-14008)
2	71-71	No. 6-32 x ¼" Phillips flat hd. M.S.—steel N.P.
3	80-418	Tension spring (pressure arm)
4	S-11671	Pressure arm and bracket assembly
5	166-30	Rubber bumper
6	S-12859	Discriminator knob and plate assembly
7	148-83	Cobra pickup arm housing (S-13675, S-14006)
8	S-13062	Cobra pickup arm hinge plate (8), swivel bracket 9, needle cartridge socket 12 and cable assembly
9		Swivel bracket (part of item 8)
10	43-148	Pickup arm housing (S-13675, S-14002)
	43-103	Pickup arm housing (S-14006, S-14008)
	84-68	Pickup arm rest (S-13675, S-14002)
	84-65	Pickup arm rest (S-14006, S-14008)
11	80-605	Cobra cartridge socket tension spring (S-13675, S-14006)
12	S-12633	Needle cartridge socket and cable assembly
13	S-11473	Cobra needle cartridge
14	S-12507	Record spindle assembly
15	187-9	Push rod (automatic stop S-13675, S-14006)
16	S-11668	Record ejector cam and shaft assembly
17	12-1124	Record ejector plate mounting bracket (S-13675, S-14006)
	12-1340	Record ejector plate mounting bracket (S-11674)
18	S-11657	Idler wheel stud and washer assembly
18A	80-368	Idler wheel tension spring
19	93-679	Idler wheel stud felt washer
20	S-11118	Idler wheel assembly
21	93-678	Idler wheel stud fish-paper washer (small)
22	188-32	Retaining ring
23	188-32	Retaining ring
24	93-903	Steel washer
25		Motor mounting spring
26	S-13931	Turntable assembly
27	56-226	Pickup arm lift pin (lower)
	80-584	Pickup arm lift pin spring
	56-227	Pickup arm lift pin (upper)
28	43-157	Pickup arm support housing (S-13675, S-14002)
	43-156	Pickup arm support housing (S-14006, S-14008)
29	S-14665	Main baseplate assembly (S-14006)
	S-13929	Main baseplate assembly (S-13675)
30	112-719	No. 6 x ⅜" flat hd. self-tapping screw
31	112-581	No. 6 x ⅜" r.h. self-tapping screw
32	S-13900	Timing sprocket assembly
32A	94-415	Pickup arm locating bushing
33	S-13902	Pickup arm pivot shaft and bracket assembly
33A		Position trip screw (part of 33)
33B		Set-down adjustment screw (part of 33)
33C	12-1216	Pickup arm pivot bracket
34	S-14581	Trip lever mounting bracket assembly
35	S-14582	Trip lever and pawl assembly
	80-582	Pawl spring (S-13901)
36	S-13904	Shut-off switch assembly (S-13675, S-14006)
	85-406	Auto-Man. switch (S-13675, S-14006)
	85-405	On-off switch (S-13675, S-14006)
	80-650	Shut-off pawl spring
	80-649	Shut-off lever spring (S-13675, S-14006)
37	S-13872	Trip plate and bushing assembly
37A	S-13496	Discriminator mounting bracket assembly (S-13675)
37A	S-11675	Discriminator mounting bracket assembly (S-14002, S-14006, and S-14008)
38	80-574	Pawl pusher bracket spring (S-13903)
39	80-653	Trip arm spring (S-13903)
40	S-13903	Clutch release arm assembly
41	166-41	Rubber bumper
42		Brake lever
43	S-10732	Idler assembly
44	S-13895	Drive sprocket and bushing assembly
45		Drive plate segment (part of item 47)
46	80-572	Clutch spring (S-13894)
47	S-13894	Clutch pawl assembly
48	S-13426	Muting switch assembly (S-13675, S-14006, and S-14008)
	S-14313	Muting switch assembly (S-14002)
49	54-66	No. 10-32 x 5/16" hex nut
50	93-673	Idler wheel stud washer (small)
51	93-677	Idler wheel stud fish-paper washer (large)
52	93-719	7/16" x 3/16" x .031 flat washer
53	93-126	No. 8 internal shakeproof lockwasher No. 1208
54	114-88	No. 8-32 x 1/32" hex acorn hd. M.S.
55	S-11683	Selector sprocket and bushing assembly
56	S-13430	Automatic stop switch assembly (S-13675, S-14006)
57	114-248	No. 6-20 x 5/16" hex hd. slotted self-tapping screw—shakeproof type 25
58	141-108	AC phono motor—60 cycles
	141-109	AC phono motor—60 cycles (S-14002)
59	214-4	Sprocket drive chain
60	80-462	Cam spring
61	S-12686	Cam and washer assembly
62	93-844	No. 5 external shakeproof lockwasher
63	112-576	No. 5-40 x ¼" oval B.H.M.S.
64	114-201	No. 8 x 5/16" hex hd. self-tapping screw
65	114-248	No. 6-20 x 5/16" hex hd. self-tapping screw—shakeproof type 25
66	12-1390	Solenoid bracket
	S-13913	Magnet assembly
67	S-13497	Bracket and spring assembly
68	80-531	Brake spring